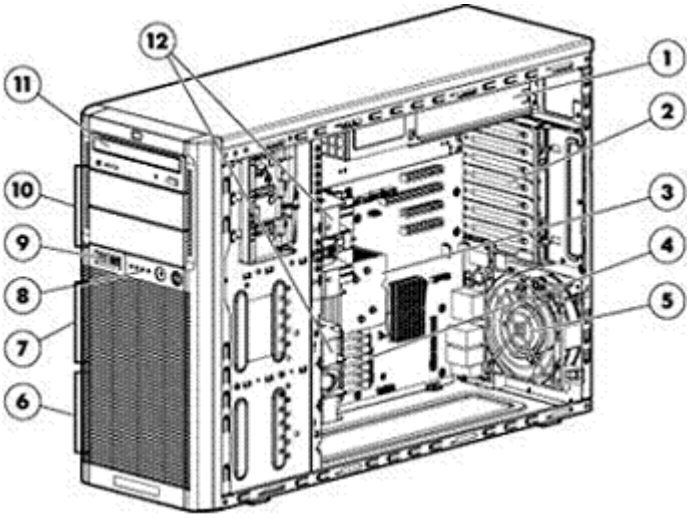
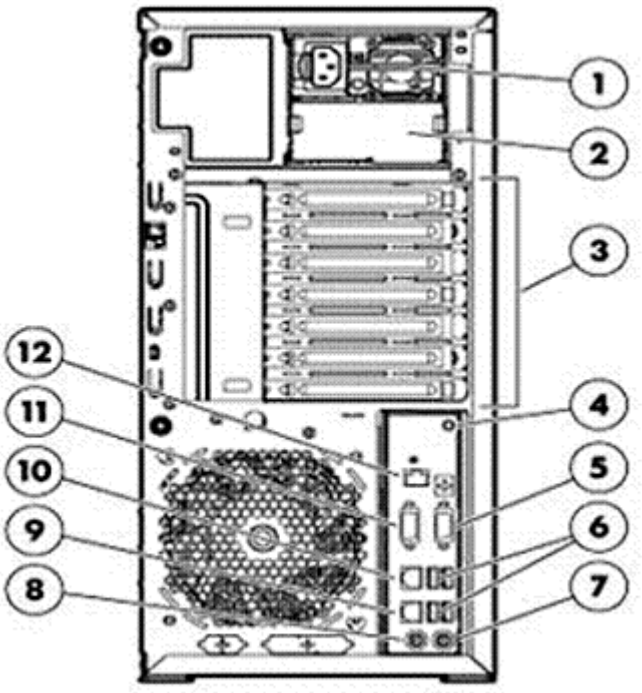
Overview

The HP ProLiant ML330 G6 is a dual processor tower platform built on the latest Intel Xeon processors with QPI technology to create unique system architecture. This unique architecture allows the businesses to scale their businesses as needed so they can optimize their IT spending dollars. The HP ProLiant ML330 G6 delivers to businesses the industry's most powerful embedded management technology with the HP Integrated Lights-Out 2 (iLO 2) allowing them to manage the servers anytime and from anywhere.





Front View:

1. Power supply
2. Expansion slots
3. First processor socket
4. Nine DIMM slots (for 1st processor)
5. Video port
6. Hard drive bays 5-8
7. Hard drive bays 1-4
8. LED indicators and power button
9. USB connectors (2)
10. Removable media bays (2)
11. Optical drive bay
12. Front system fans (2)

Rear View:

1. Power supply 1
2. Optional power supply for redundancy
3. Expansion slots
4. UID button/LED
5. Video ports
6. USB ports (4)
7. PS/2 keyboard port
8. PS/2 mouse port
9. Network port 1 (shared iLO management port)
10. Network port 2
11. Serial port
12. Dedicated iLO2 management port (optional)

Standard Features

NOTE: For the Standard Features shipped in the "Factory Integrated Models", please see the "Configuration Information - Factory Integrated Models" section.

Processor One of the following depending on Model	Six-Core Processors Intel® Xeon® X5650 (2.66GHz/6-core/95W/12MB) Processor Intel® Xeon® E5649 (2.53GHz/6-core/12MB/80W) Processor Intel® Xeon® E5645 (2.40GHz/6-core/12MB/80W) Processor Quad-Core Processors Intel® Xeon® E5640 (2.66GHz/4-core/80W/12MB) Processor Intel® Xeon® E5630 (2.53GHz/4-core/80W/12MB) Processor Intel® Xeon® E5620 (2.40GHz/4-core/80W/12MB) Processor Intel® Xeon® E5607 (2.26GHz/4-core/8MB/80W) Processor Intel® Xeon® E5606 (2.13GHz/4-core/8MB/80W) Processor Intel® Xeon® E5603 (1.60GHz/4-core/4MB/80W) Processor Intel® Xeon® E5540 (2.53GHz/4-core/8MB/80W) Processor Intel® Xeon® E5530 (2.40GHz/4-core/8MB/80W) Processor Intel® Xeon® E5520 (2.26GHz/4-core/8MB/80W) Processor Intel® Xeon® E5507 (2.26 GHz/4-core/80W/4MB) Processor Intel® Xeon® E5506 (2.13GHz/4-core/4MB/80W) Processor Intel® Xeon® E5504 (2.0GHz/4-core/4MB/80W) Processor Dual-Core Processors Intel® Xeon® E5503 (2.0GHz/2-core/80W/4MB) Processor Intel® Xeon® E5502 (1.86GHz/2-core/4MB/80W) Processor NOTE: For the Intel 5500 and 5600 Series, the letter preceding the model number indicates the performance/wattage of the processor. "X" denotes High Performance/Wattage; "E" denotes Enterprise Performance/Wattage (Mainstream); and "L" denotes Lower Wattage.
Cache Memory One of the following depending on Model	12MB (1x 12MB) level 3 cache NOTE: For X5600 and E5600 series processors. 8MB (1 x 8MB) Level 3 cache NOTE: For E5606/E5607/E5540/E5530/E5520 processors. 4MB (1 x 4MB) Level 3 cache NOTE: For E5603/E5507/E5506/E5504/E5503/E5502 processors.
Chipset	Intel® 5500 Chipset NOTE: For more information regarding Intel® chipsets, please see the following URL: http://www.intel.com/products/server/chipsets/.
Upgradeability	Upgradeable to 2 processors (2, 4, or 6 core)

Standard Features

Memory Protection

Mirroring
Lock-step mode
Advanced ECC
Online Spare (Requires X5600 or E5600 processor family)
NOTE: Xeon W3500 processor family does not support any of above advanced features.

Memory
One of the following depending on model

Type	DDR3 Registered (RDIMM) and Unbuffered (UDIMM)
Standard (Performance Model)	6GB (3 x 2GB) PC3-10600R (DDR3-1333) Registered DIMMs
Standard (Base Models)	4GB (2 x 2GB) PC3-10600R (DDR3-1333) Registered DIMMs 4GB (2 x 2GB) PC3-10600E (DDR3-1333) Unbuffered DIMMs
Standard (Entry Models)	2GB (1 x 2GB) PC3-10600R (DDR3-1333) Registered DIMMs 2GB (1 x 2GB) PC3-10600E (DDR3-1333) Unbuffered DIMMs
Maximum (RDIMM)	192GB (12 DIMM slots x16GB) for Registered Memory configurations
Maximum (UDIMM)	48GB (12 DIMM slots x 4GB) for Unbuffered Memory configurations

NOTE: Depending on the memory configuration and processor model, the memory speed may run at 1333MHz, 1066MHz, or 800MHz. Please see the Online Memory Configuration Tool at: www.hp.com/go/ddr3memory-configurator.
NOTE: If only one processor is installed, only half the DIMM slots are available

Network Controller

Embedded NC326i PCI Express Dual Port Gigabit Server Adapter

Expansion Slots

NOTE: Four total expansion slots. One (1) PCI-Express x8 Gen1 (x1 speed); One (1) PCI-Express x16 Gen2 (x16 speed); Two (2) PCI-Express x8 Gen2 (x4 speed). Optional PCI-X Expander provides additional two (2) 64-bit/100-MHz PCI-X slots by using a single PCI Express slot (only on slot 5).

Expansion Slot #	Technology	Bus Width**	Connector Width	Bus Number*	Form Factor	Notes
6	PCI Express Gen2	x4	x8	4	Standard Height/ Half Length	
5	PCI Express Gen2	x4	x8	10	Standard Height/ Half Length	
4	PCI Express Gen2	x16	x16	13	Standard Height/Length	
3	PCI Express Gen1	x1	x8	7	Standard Height/Length	

* Default bus assignment (in decimal). Inserting cards with PCI bridges may alter the actual bus assignment number
** Indicates the number of physical electrical lanes running to the connector.

Standard Features

Storage Controller	Entry Models	Non hot plug SATA model with HP Smart Array B110i SATA RAID Controller (RAID 0/1/1+0)
	Base Models	Hot plug SAS model with integrated HP Smart Array P410/Zero memory SAS Controller (RAID 0/1/1+0) Hot plug SATA model with integrated HP Smart Array B110i SATA RAID controller and hot plug advanced key
	Performance Models	Hot plug SATA model with integrated HP Smart Array B110i SATA RAID controller and hot plug advanced key
	Available upgrades: 256MB, 512MB with BBWC, 512MB with FBWC, 1G with FBWC, Battery kit upgrade (for the 256MB cache), and Smart Array Advanced Pack (SAAP)	

Internal Storage Devices	Diskette Drive	None
	Optical Drive	HP Half-Height SATA DVD-ROM Optical Drive
	Hard Drives	Hot Plug Model: None ship standard
	One of the following depending on Model	Non-Hot Plug Model: HP 250GB 3G SATA 7.2K NHP 3.5" ETY HDD

Maximum Internal Storage	Hot Plug LFF SATA	24TB	8 x 3TB
	Hot Plug LFF SAS	24TB	8 x 3TB
	Hot Plug LFF SATA SSD	3.2TB	8 x 400GB

Interfaces	Serial	1
	Network RJ-45	3 (1 dedicated for HP Integrated Lights-Out 2 (iLO 2)
	Keyboard	1
	Pointing Device (Mouse)	1
	Graphics	1
	SD Slot	1 (internal)
	USB 2.0 Ports	8 (2 front, 4 rear, 2 internal) NOTE: Please see the following URL for additional information regarding USB support: http://h18004.www1.hp.com/products/servers/platforms/usb-support.html.

Industry Standard Compliance	ACPI V2.0 Compliant
	PCI-Express Gen2
	PXE Support
	WOL Support
	PCI-X 1.0a Compliant
	Microsoft® Logo certifications
	USB 2.0

Standard Features

Server Power Cords	NOTE: If customers require a power cord, they can check the power cord matrix for the appropriate sku. Please see the following power cord matrix for details: http://www.hp.com/go/powercordmatrix
Common Slot Power Supplies	It is highly recommended that you use the HP Power Advisor in defining the "Right-Size" power supply for your need. The HP Power Advisor is located at www.hp.com/go/hppoweradvisor HP has a new design for ProLiant power supplies. The new Common Slot (CS) Power Supply provides the customer with commonality in power supplies across multiple platforms to save on the cost of spares and allows HP to offer multiple power solutions to fit the customers' needs. Many HP ProLiant Servers come with or are compatible with high-efficiency HP CS Power Supplies. These power supplies are designed to provide high-efficiency power without degrading performance of the ProLiant server. HP CS Power Supplies options for this server have efficiency ratings up to 92%. There are three Right Size power options available, depending on the configuration of your server. To make sure you select the correct power supply to meet your configuration, we suggest that you use the HP Power Advisor to decide the "Right-Size" for your configuration. All HP Common Slot power sources are UL, CE Mark Compliant, Hot Plug and Redundant. HP's ProLiant CS Power supplies meet multiple Energy Efficiency Initiatives, including Climate Savers Computing Initiative GOLD, ECOS Consulting 80PLUS GOLD and they meet the standard specifications for Energy Star for Servers Power Supply requirements.
System Fans	3 fans ship standard. System supports a total of 4 fans. NOTE: Does not include power supply or processor heat sink fans. Processor heat sink fans are packed in the processor option kit. NOTE: If customer orders the standalone redundant fan option kit, he/she will receive two (2) fans in a two-fan packaged box. Only one (1) fan is required for system redundancy. The other one can be saved as a spare part. If customer orders the redundant fan kit along with the server, he/she will not be receiving the extra fan.
Operating Systems and Virtualization Software Support for ProLiant Servers	Microsoft Windows Server Microsoft Windows Server Hyper V Red Hat Enterprise Linux (RHEL) SUSE Linux Enterprise Server (SLES) VMware Citrix Essentials for XenServer NOTE: For more information on HP's Certified and Supported ProLiant Servers for OS and Virtualization Software and latest listing of software drivers available for your server, please visit our Support Matrix at: http://www.hp.com/go/ossupport and our driver download page www.hp.com/support/ML330G6.
Graphics	Integrated ATI RN50, 64MB video standard • 16 bit color: maximum resolution of 1600 x 1200 • 32 bit color: maximum resolution of 1280 x 1024 NOTE: Maximum resolution available via HP Integrated Lights-Out 2 (iLO 2) remote console is 1280 x 1024.

Standard Features

Form Factor	Tower (5U) NOTE: Rack mounting available via HP Tower to Rack Conversion Tray, Universal Kit. Please see the options section in this QuickSpecs: • Square or round hole racks 24"- 36" deep, including HP Rack System /E and HP Systems • Telco racks with 3rd part option kit from Rack Solutions www.hp.com/go/rackandpower	
HP Insight management software	HP Insight Foundation	Managing the growing number of servers can be complex and expensive for your organization. IT managers need to address changing business needs with tools that meet the challenges of managing today's complex Datacenters. HP provides management solutions that are designed to simplify a server's installation, configuration and maintenance throughout the entire server lifecycle. This provides the customer with higher levels of operational efficiency and highly reliable systems: www.hp.com/go/foundation. The foundation pack includes: • HP SmartStart • HP Management DVD • HP ProLiant Smart Update Firmware DVD SmartStart version supported (minimum): SmartStart 8.25 http://www.hp.com/servers/smartstart NOTE: In an effort to support reducing our environmental impact, the HP ProLiant Essentials Foundation Pack media will be available as a selectable option for this server at time of order of a Factory Integrated Model. This will allow customers to order the number of media kits that best meet their needs and eliminate receiving unnecessary duplicate media.
	HP Integrated Lights-Out 2 (iLO 2)	HP Integrated Lights-Out 2 (iLO 2) simplifies server setup, health monitoring, power and thermal control, and lights-out remote administration of ProLiant ML, DL, and BL servers. HP iLO 2 functions without additional software and can be accessed from any location via a web browser. HP iLO 2 works hand-in-hand with HP Systems Insight Manager, Insight Control suites, and Insight Dynamics for ProLiant, helping customers unleash the value of the ProLiant platform and deliver the highest possible quality of IT service. For more information, visit: www.hp.com/go/iLO

Standard Features

Intelligent Manageability	HP Systems Insight Manager SmartStart Redundant ROM System Firmware Update ROMPaq ProLiant RBSU (ROM-Based Setup Utility) Automatic Server Recovery-2 (ASR-2) Dynamic Sector Repairing (with Smart Array Controller) Drive Parameter Tracking (with Smart Array Controller) Pre-Failure Warranty (covers processors, memory, and SAS hard drives) Dynamic power capping (with 750W PSU)
Security	Power-on password Setup password Serial interface control Power switch security Front bezel/side access panel Lock Padlock and Kensington lock available Keyboard/Mouse/USB port lock
Warranty	This product is covered by a global limited warranty and supported by HP Services and a worldwide network of HP Authorized Channel Partners resellers. Hardware diagnostic support and repair is available for three years from date of purchase. Support for software and initial setup is available for 90 days from date of purchase. Enhancements to warranty services are available through HP Care Pack services or customized service agreements. Hard drives have either a one year or three year warranty; refer to the specific hard drive QuickSpecs for details. NOTE: Server Warranty includes 3-Year Parts, 1-Year Labor, 1-Year Onsite support with next business day response. Warranty repairs may be accomplished through the use of Customer Self Repair (CSR) parts. These parts fall into two categories: 1) Mandatory CSR parts are designed for easy replacement. A travel and labor charge will result when customers decline to replace a Mandatory CSR part; 2) Optional CSR parts are also designed for easy replacement but may involve added complexity. Customers may choose to have HP replace Optional CSR parts at no charge. Additional information regarding worldwide limited warranty and technical support is available at: http://h18004.www1.hp.com/products/servers/platforms/warranty/index.html

Optional Features

HP Insight management software	HP Insight Control	HP Insight Control, a product option, delivers essential infrastructure management that can help save time and money by making it easy to deploy, migrate, monitor, remote control, and optimize your IT infrastructure through a single, simple management console. Two versions of Insight Control are available, to serve environments requiring either a Linux-based or a Windows-based central management server: HP Insight Control for Linux, and HP Insight Control. See www.hp.com/go/insightcontrol HP Insight Control includes one year of 24 x 7 HP Software Technical Support and Update Service ensuring rapid access to HP support staff and proactive delivery of software updates. For more information about this service, please visit: http://www.hp.com/services/insight.
	HP Insight Dynamics for ProLiant	HP Insight Dynamics for ProLiant, a product option, is advanced infrastructure management software that enables IT staff to instantly adjust their environments to meet dynamic business demands by provisioning, optimizing and protecting complex infrastructure in minutes. It's a powerful toolkit, integrated-by-design, that accelerates complex technology projects and simplifies daily operations, transforming data center economics. With Insight Dynamics IT professionals can plan capacity and power continuously, balance workloads across physical and virtual resources, and ensure cost-effective high availability. It also enables IT organizations to provision infrastructure consistently and automatically from pools of shared resources using a self-service portal. Resources provisioned can range from a single virtual machine to complex multi-tier environments and their associated physical and virtual resource requirements. In addition to the previous functional benefits, it also provides a cost-effective disaster recovery for physical and virtual environments that works with HP StorageWorks Continuous Access software for both the Enterprise Virtual Array and the XP storage array allowing application environments to be reactivated in minutes with the touch of a button to a remote location. NOTE: For more information, visit: http://www.hp.com/go/insightdynamics

Optional Features

Factory Express Portfolio for Servers and Storage

HP Factory Express offers configuration, customization, integration and deployment services for HP servers and storage products. Customers can choose how their factory solutions are built, tested, integrated, shipped and deployed.

Factory Express offers service packages for simple configuration, racking, installation, complex configuration and design services as well as individual factory services, such as image loading, asset tagging, and custom packaging. HP products supported through Factory Express include a wide array of servers and storage: HP Integrity, HP ProLiant, HP ProLiant Server Blades, HP BladeSystem, HP 9000 servers as well as the MSAxxxx, VA7xxx, EVA, XP, rackable tape libraries and configurable network switches.

For more information on Factory Express services for your specific server model please contact your sales representative or go to: http://www.hp.com/go/factory-express.

HP Enterprise Configurator

The HP eConfigure-Enterprise Configurator now provides factory default racking for our HP hardware portfolio. This approach is aligned with our strategic direction to meet the needs and expectations of our valued customers. If you require "custom" rack configuration, please contact HP's Customer Business Center or an Authorized Partner for assistance. http://www.hp.com/products/configurator

Service and Support

HP Technology Services for Industry Standard Servers and BladeSystem
Capitalizing on HP ProLiant server and HP BladeSystem capabilities requires a service partner who understands your increasingly complex business technology environment. That's why it makes sense to team up with the people who know HP infrastructure hardware and software best - the experienced professionals at HP Services.

What HP ProLiant and BladeSystem Services can do for you
HP ProLiant and BladeSystem Services can help you design, deploy, test, integrate, support, and manage IT and infrastructure solutions. This way, HP proposes services solutions that include more than just uplift of base warranty. You can get the support you need by choosing from one of a number of service packaged solutions we have designed to address wider set of customer support needs:.

HP Technology Services meets business challenges with services offered in three packages - **Optimized Care Package, Standard Care Package, and Basic Care Package** - available for each product group. Such packaged solutions enable customers to optimize technology operations, minimize risk and drive better business outcomes with easy-to-buy, easy-to-use scalable support packages for servers, storage, networking and software.

Optimized Care

Optimized Care Package: Supports maintaining servers at optimum performance availability

HP ProLiant Server Hardware Installation
Provides for the basic hardware installation of HP branded servers, storage devices and networking options to assist you in bringing your new hardware into operation in a timely and professional manner http://h20195.www2.hp.com/V2/GetPDF.aspx/5981-9356EN

HP Installation and Startup for Insight Control Software
Provides for the deployment and basic configuration of HP Insight Control on HP ProLiant ML and DL series servers or HP BladeSystem servers http://h20195.www2.hp.com/v2/GetPDF.aspx/4AA0-9972ENW.pdf

3-Year HP Critical Advantage
Provides end-to-end infrastructure support solution for business critical applications running on virtualized/x86 infrastructures, enabling the customers to cost effectively build, operate, and continuously improve their IT environment
http://h20195.www2.hp.com/V2/GetDocument.aspx?docname=4AA3-1772ENW

Additional Services: Microsoft or Linux or VMware education courses + Facility & technology environmental assessment services + Energy Efficiency Design, Factory Express

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Service and Support

Standard Care	Standard Care Package: Package that maintains high level of server availability HP ProLiant Server Hardware Installation Provides for the basic hardware installation of HP branded servers, storage devices and networking options to assist you in bringing your new hardware into operation in a timely and professional manner http://h20195.www2.hp.com/V2/GetPDF.aspx/5981-9356EN HP Installation and Startup for Insight Control Software Provides for the deployment and basic configuration of HP Insight Control on HP ProLiant ML and DL series servers or HP BladeSystem servers http://h20195.www2.hp.com/v2/GetPDF.aspx/4AA0-9972ENW.pdf 3-Year HP 6 hour Hardware Support Onsite Call-to-Repair Service Provides an IT manager with a team of support specialists who will quickly begin troubleshooting the system to help return the hardware to operating condition within 6 hours of the initial service request to the HP Global Solution Center http://h20195.www2.hp.com/V2/GetPDF.aspx/5982-6547EN.pdf 3-Year , HP 24x7 Software Support for Insight Control Provides for the deployment and basic configuration of HP Insight Control on HP ProLiant ML and DL series servers or HP BladeSystem servers http://h20195.www2.hp.com/V2/GetPDF.aspx/5981-6645EEE.pdf Additional Services: Software OS (Microsoft, Linux (SUSE/Red Hat) & VMware Installation & Start Up, and Software Support; Install and Startup Services for Insight Control; Microsoft or Linux or VMware education courses; +30 Proactive Select Credits, Factory Express
Basic Care	Basic Care Package: delivers minimum recommended support service level HP ProLiant Server Hardware Installation Provides for the basic hardware installation of HP branded servers, storage devices and networking options to assist you in bringing your new hardware into operation in a timely and professional manner http://h20195.www2.hp.com/V2/GetPDF.aspx/5981-9356EN 3-Year HP 24x7 4 hour Response, Hardware Support Onsite Service Provides for the deployment and basic configuration of HP Insight Control on HP ProLiant ML and DL series servers or HP BladeSystem servers http://h20195.www2.hp.com/v2/GetPDF.aspx/4AA0-9972ENW.pdf Additional Services: Software OS (Microsoft, Linux (SUSE/Red Hat) & VMware Installation & Start Up and Software Support); +10 Proactive Select Credits, Factory Express
Insight Remote Support	The packages include HP Insight Remote Support that uses proven technology to deliver secure, reliable 24x7 remote monitoring, diagnoses, and problem resolution. It is available at no additional cost to all warranty, HP Care Pack Service, and service agreement customers.
For more information	To learn more on HP ProLiant servers and HP BladeSystem servers, please contact your HP sales representative or HP Authorized Channel Partner. Or visit: http://www.hp.com/services/proliant

Pre-configured Models

NOTE: For the Standard Features shipped in the "Factory Integrated Models", please see the "Configuration Information - Factory Integrated Models" section.
NOTE: Pre-configured models ship with the configurations below. Options can be selected from the Core or Additional options section of this QuickSpecs.
NOTE: HP does not allow factory integration of options into pre-configured models. Any additional options purchased will be shipped separately.
NOTE: If you desire a custom configuration please see "Configuration Information - Factory Integrated Models" section of this QuickSpecs.

Entry Models

Quad-Core Models HP ProLiant ML330 G6 E5504 1P 2GB-R Non-hot Plug SATA 250GB 460W PS Entry Server 504055-001	Processor(s)	(1) Intel® Xeon® E5504 (2.0GHz/4-core/4MB/80W) Processor
	Cache Memory	4MB (1 x 4MB) Level 3 cache
	Memory	2 GB (1 x 2 GB) PC3-10600R (DDR3-1333) Registered DIMMs NOTE: 18 DIMM slots.
	Network Controller	Embedded NC326i PCI Express Dual Port Gigabit Server Adapter
	Storage Controller	Embedded HP Smart Array B110i SATA RAID Controller (RAID 0/1/0+1)
	Hard Drive	One (1) 250GB 3G SATA 7.2K NHP 3.5" ETY HDD
	Internal Storage	(4) LFF Non Hot Plug SATA HDD Bays only
	Optical Drive	HP Half-Height SATA DVD-ROM Optical Drive
	Power Supply	460 Watt power supply (NHP, Non Redundant)
	Fans	3 fans ship standard
	Accessories	PS/2 Keyboard and Mouse ship standard
	Form Factor	Tower (5U)
	Warranty	Server Warranty includes 3-Year Parts, 1-Year Labor, 1-Year Onsite support with next business day response.

Quad-Core Models HP ProLiant ML330 G6 E5603 1P 2GB-U B110i Non-hot Plug SATA 250GB 460W PS Server 637079-001	Processor(s)	(1) Intel® Xeon® E5603 (1.60GHz/4-core/4MB/80W) Processor
	Cache Memory	4MB (1 x 4MB) Level 3 cache
	Memory	2 GB (1 x 2 GB) PC3-10600E (DDR3-1333) Unbuffered DIMMs NOTE: 12 DIMM slots.
	Network Controller	Embedded NC326i PCI Express Dual Port Gigabit Server Adapter
	Storage Controller	Embedded HP Smart Array B110i SATA RAID Controller (RAID 0/1/0+1)
	Hard Drive	One (1) 250GB 3G SATA 7.2K NHP 3.5" ETY HDD
	Internal Storage	(4) LFF Non Hot Plug SATA HDD Bays only
	Optical Drive	HP Half-Height SATA DVD-ROM Optical Drive
	Power Supply	460 Watt power supply (NHP, Non Redundant)
	Fans	3 fans ship standard
	Accessories	PS/2 Keyboard and Mouse ship standard
	Form Factor	Tower (5U)
	Warranty	Server Warranty includes 3-Year Parts, 1-Year Labor, 1-Year Onsite support with next business day response.

Base Models

Pre-configured Models

Quad-Core Models HP ProLiant ML330 G6 E5506 1P 4GB-R P410/ZM Hot Plug SAS/SATA 460W PS Base Svr 504056-001	Processor(s)	(1) Intel® Xeon® E5506 (2.13GHz/4-core/4MB/80W) Processor
	Cache Memory	4MB (1 x 4MB) Level 3 cache
	Memory	4 GB (2 x 2 GB) PC3-10600R (DDR3-1333) Registered DIMMs NOTE: 18 DIMM slots.
	Network Controller	Embedded NC326i PCI Express Dual Port Gigabit Server Adapter
	Storage Controller	HP Smart Array P410/Zero memory Controller (RAID 0/1/0+1)
	Hard Drive	None ship standard
	Internal Storage	(4) LFF Hot Plug SATA/SAS HDD Bays; upgradeable to (8)
	Optical Drive	HP Half-Height SATA DVD-ROM Optical Drive
	Power Supply	460 Watt power supply (NHP, Non Redundant)
	Fans	3 fans ship standard
	Accessories	PS/2 Keyboard and Mouse ship standard
	Form Factor	Tower (5U)
	Warranty	Server Warranty includes 3-Year Parts, 1-Year Labor, 1-Year Onsite support with next business day response.

Quad-Core Models HP ProLiant ML330 G6 E5507 1P 4GB-R B110i Hot Plug SATA LFF 460W PS Base Server 600910-001	Processor(s)	(1) Intel® Xeon® E5507 (2.26 GHz/4-core/80W/4MB) Processor
	Cache Memory	4MB (1 x 4MB) Level 3 cache
	Memory	4 GB (2 x 2 GB) PC3-10600R (DDR3-1333) Registered DIMMs NOTE: 18 DIMM slots.
	Network Controller	Embedded NC326i PCI Express Dual Port Gigabit Server Adapter
	Storage Controller	Embedded HP Smart Array B110i SATA RAID Controller Hot plug advanced key (RAID 0/1/0+1)
	Hard Drive	None ship standard
	Internal Storage	(4) LFF Hot Plug SATA HDD Bays; upgradeable to (8)
	Optical Drive	HP Half-Height SATA DVD-ROM Optical Drive
	Power Supply	460 Watt power supply (NHP, Non Redundant)
	Fans	3 fans ship standard
	Accessories	PS/2 Keyboard and Mouse ship standard
	Form Factor	Tower (5U)
	Warranty	Server Warranty includes 3-Year Parts, 1-Year Labor, 1-Year Onsite support with next business day response.

Quad-Core Models HP ProLiant ML330 G6 E5606 1P 4GB-U B110i 460W PS Server 637080-001	Processor(s)	(1) Intel® Xeon® E5606 (2.13GHz/4-core/8MB/80W) Processor
	Cache Memory	8MB (1 x 8MB) Level 3 cache
	Memory	4 GB (2 x 2 GB) PC3-10600E (DDR3-1333) Unbuffered DIMMs NOTE: 12 DIMM slots.
	Network Controller	Embedded NC326i PCI Express Dual Port Gigabit Server Adapter
	Storage Controller	Embedded HP Smart Array B110i SATA RAID Controller Hot plug advanced key (RAID 0/1/0+1)
	Hard Drive	None ship standard
	Internal Storage	(4) LFF Hot Plug SATA HDD Bays; upgradeable to (8)

Pre-configured Models

Optical Drive	HP Half-Height SATA DVD-ROM Optical Drive
Power Supply	460 Watt power supply (NHP, Non Redundant)
Fans	3 fans ship standard
Accessories	PS/2 Keyboard and Mouse ship standard
Form Factor	Tower (5U)
Warranty	Server Warranty includes 3-Year Parts, 1-Year Labor, 1-Year Onsite support with next business day response.

Performance Model

Quad-Core Models
HP ProLiant ML330 G6 E5620 1P 6GB-R B110i Hot Plug SATA LFF 460W PS Perf Server
600911-001

Processor(s)	(1) Intel® Xeon® E5620 (2.40GHz/4-core/80W/12MB) Processor
Cache Memory	12MB (1 x 12MB) Level 3 cache
Memory	6 GB (3 x 2 GB) PC3-10600R (DDR3-1333) Registered DIMMs NOTE: 18 DIMM slots.
Network Controller	Embedded NC326i PCI Express Dual Port Gigabit Server Adapter
Storage Controller	Embedded HP Smart Array B110i SATA RAID Controller Hot plug advanced key (RAID 0/1/0+1)
Hard Drive	None ship standard
Internal Storage	(4) LFF Hot Plug SATA HDD Bays; upgradeable to (8)
Optical Drive	HP Half-Height SATA DVD-ROM Optical Drive
Power Supply	460 Watt power supply (NHP, Non Redundant)
Fans	3 fans ship standard
Accessories	PS/2 Keyboard and Mouse ship standard
Form Factor	Tower (5U)
Warranty	Server Warranty includes 3-Year Parts, 1-Year Labor, 1-Year Onsite support with next business day response.

Smart Buys

The ProLiant Smart Buy program offers a collection of promotional server and option products that are configured with SMB in mind, offered at discounted prices, and positioned for quick delivery. Smart Buy server offers are available for a limited time only.

S-Buy ML330G6 E5504 HP 250GB SATA Server 517609-005	Processor(s)	(1) Intel® Xeon® Processor E5504 (2.00 GHz, 80W, DDR3-800)
	Cache Memory	4MB Level 3 cache
	Memory	2 GB (2Rx8 PC3-10600R-9)
	Network Controller	Embedded NC326i PCI Express Dual Port Gigabit Server Adapter
	Storage Controller	Smart Array P410i/ZM Controller (RAID 0/1/1+0)
	Hard Drive	(1) HP 250GB 3G SATA 7.2K 3.5" MDL HDD included
	Internal Storage	Up to 4 standard, up to 8 with addition of second HP drive cage
	Optical Drive	Half-Height SATA DVD-ROM Drive
	PCI-Express Slots	Four expansion slots (three PCI-Express Gen2, one PCI-Express Gen1)
	Power Supply	(1) HP 750W CS HE Power Supply Kit (RPS enablement kit included)
	Fans	3 fans ship standard, 4 fans total supported (optional (1) redundant fan)
	Form Factor	Tower (5U)

S-Buy ML330G6 E5506 HP 146GB SAS Server 517610-005	Processor(s)	(1) Intel® Xeon® Processor E5506 (2.13 GHz, 80W, DDR3-800)
	Cache Memory	4MB Level 3 cache
	Memory	2 GB (2Rx8 PC3-10600R-9)
	Network Controller	Embedded NC326i PCI Express Dual Port Gigabit Server Adapter
	Storage Controller	Smart Array P410i/ZM Controller (RAID 0/1/1+0)
	Hard Drive	(1) HP 146GB 3G 15K 3.5" DP SAS ENT HDD included
	Internal Storage	Up to 4 standard, up to 8 with addition of second HP drive cage
	Optical Drive	Half-Height SATA DVD-ROM Drive
	PCI-Express Slots	Four expansion slots (three PCI-Express Gen2, one PCI-Express Gen1)
	Power Supply	(1) HP 750W CS HE Power Supply Kit (RPS enablement kit included)
	Fans	3 fans ship standard, 4 fans total supported (optional (1) redundant fan)
	Form Factor	Tower (5U)

Smart Buys

S-Buy ML330G6 E5520 HP 2x250GB SATA SBS 2008 Server 517611-005	Processor(s)	(1) Intel® Xeon® Processor E5520 (2.26 GHz, 80W, DDR3-1066, HT, Turbo 1/1/2/2)
	Cache Memory	8MB Level 3 Cache
	Memory	4GB (2x2GB 2Rx8 PC3-10600R-9)
	Network Controller	Embedded NC326i PCI Express Dual Port Gigabit Server Adapter
	Storage Controller	Smart Array P410i/ZM Controller (RAID 0/1/1+0)
	Hard Drive	(2) HP 250GB 3G SATA 7.2K 3.5" MDL HDD included
	Internal Storage	Up to 4 standard, up to 8 with addition of second HP drive cage
	Optical Drive	Half-Height SATA DVD-ROM Drive
	PCI-Express Slots	Four expansion slots (three PCI-Express Gen2, one PCI-Express Gen1)
	Power Supply	(1) HP 750W CS HE Power Supply Kit (RPS enablement kit included)
	Fans	3 fans ship standard, 4 fans total supported (optional (1) redundant fan)
	Form Factor	Tower (5U)
	Operating System	Windows Small Business Server 2008

S-Buy ML330G6 E5506 HP 1x250GB SATA Server 601565-005	Processor(s)	(1) Intel® Xeon® Processor E5506 (2.13 GHz, 4MB L3 Cache, 80W, DDR3-800)
	Cache Memory	4MB Level 3 Cache
	Memory	2GB (1x2GB 2Rx8 PC3-10600R-9)
	Network Controller	Embedded NC326i PCI Express Dual Port Gigabit Server Adapter
	Storage Controller	Embedded HP Smart Array B110i SATA RAID Controller Hot plug advanced key (RAID 0/1/0+1)
	Hard Drive	(1) HP 250GB 3G SATA 7.2K 3.5" MDL HDD included
	Internal Storage	8TB LFF SAS 8TB LFF SATA
	Optical Drive	Half-Height SATA DVD-RW Drive
	Power Supply	(1) 460 Watt power supply (NHP, Non Redundant)
	Fans	3 fans ship standard, 4 fans total supported (optional (1) redundant fan)
	Form Factor	Tower (5U)

Smart Buys

S-Buy ML330G6 E5507 HP 1x146GB SAS Server 601566-005	Processor(s)	(1) Intel® Xeon® Processor E5507 (2.26 GHz, 4MB L3 Cache, 80W, DDR3-800)
	Cache Memory	4MB (1 x 4MB) Level 3 cache
	Memory	2GB (1 x 2 GB) PC3-10600R (DDR3-1333) Registered DIMMs NOTE: 18 DIMM slots.
	Network Controller	Embedded NC326i PCI Express Dual Port Gigabit Server Adapter
	Storage Controller	HP Smart Array P410 Controller
	Hard Drive	(1) HP 146GB 3G SAS 15K LFF (3.5-inch) Dual Port Enterprise 3yr Warranty Hard Drive
	Internal Storage	8TB LFF SAS 8TB LFF SATA
	Optical Drive	HP Half-Height SATA DVD-ROM Optical Drive
	Power Supply	(1) 460 Watt power supply (NHP, Non Redundant)
	Fans	3 fans ship standard
	Form Factor	Tower (5U)
	Warranty	Server Warranty includes 3-Year Parts, 1-Year Labor, 1-Year Onsite support with next business day response.

S-Buy ML330G6 E5620 HP 2x250GB SATA SBS 08 Server 601567-005	Processor(s)	(1) Intel® Xeon® Processor E5620 (2.40 GHz, 12MB L3 Cache, 80W, DDR3-1066)
	Cache Memory	12MB (1 x 12MB) Level 3 cache
	Memory	4 GB (2 x 2 GB) PC3-10600R (DDR3-1333) Registered DIMMs NOTE: 18 DIMM slots.
	Network Controller	Embedded NC326i PCI Express Dual Port Gigabit Server Adapter
	Storage Controller	Embedded HP Smart Array B110i SATA RAID Controller Hot plug advanced key (RAID 0/1/0+1)
	Hard Drive	(2) HP 250GB 3G SATA 7.2K rpm LFF (3.5-inch) Midline 1yr Warranty Hard Drive
	Internal Storage	8TB LFF SAS 8TB LFF SATA
	Optical Drive	HP Half-Height SATA DVD-ROM Optical Drive
	Power Supply	(1) HP 750W CS HE Power Supply with HP Redundant Power Supply Enablement Kit
	Fans	3 fans ship standard
	Form Factor	Tower (5U)
	Warranty	Server Warranty includes 3-Year Parts, 1-Year Labor, 1-Year Onsite support with next business day response.
	Operating System	Windows Small Business Server 2008

S-Buy ML330 G6 E5606 HotPlug Server 654077-S01	Processor(s)	(1) Intel® Xeon® Processor E5606 (2.13 GHz, 8MB L3 Cache, 80W)
	Cache Memory	8MB (1 x 8MB) Level 3 cache
	Memory	4 GB (1 x 4 GB) PC3-10600R (DDR3-1333) Registered DIMMs
	Network Controller	Embedded NC326i PCI Express Dual Port Gigabit Server Adapter

Storage Controller	Embedded HP Smart Array B110i SATA RAID Controller Hot plug advanced pack (RAID 0/1/0+1)
Hard Drive	None ship standard, HP HotPlug HDD Drive Cage Kit, LFF
Optical Drive	HP Half-Height SATA DVD-RW Optical Drive
Power Supply	460 Watt power supply (NHP, Non Redundant)
Fans	3 fans ship standard
Accessories	PS/2 Keyboard and Mouse ship standard
Form Factor	Tower (5U)
Warranty	Server Warranty includes 3-Year Parts, 1-Year Labor, 1-Year Onsite support with next business day response.

NOTE: This section lists some of the steps required to configure a Factory Integrated Model. To ensure only valid configurations are ordered, HP recommends the use of an HP approved configurator. Contact your local sales representative for information on configurable product offerings and requirements.
NOTE: Configure-to-order (CTO) servers must start with a CTO Chassis.
NOTE: FIO indicates that this option is only available as a factory installable option.

Step 1: Base Configuration (choose one of the following configurable models)

HP Models	HP ProLiant ML330 G6 Configure-to-order Tower Server	504271-B21
	Includes:	
	Embedded NC326i PCI Express Dual Port Gigabit Server Adapter Integrated Smart Array B110i SATA RAID Controller Four (4) LFF HDD bays Four (4) PCIe slots Eight (8) USB ports Tower Form Factor PS/2 Keyboard and Mouse (selection required)	

Step 2: Choose Required Options (only one of the following from each list unless otherwise noted)

HP Processors	Six-Core Processors	
	HP ML330 G6 Intel® Xeon® E5649 (2.53GHz/6-core/12MB/80W) FIO Processor Kit	637700-L21
	HP ML330 G6 Intel® Xeon® E5645 (2.40GHz/6-core/12MB/80W) FIO Processor Kit	637701-L21
	Quad-Core Processors	
	HP ML330 G6 Intel® Xeon® E5620 (2.40GHz/4-core/12MB/80W) FIO Processor Kit	601052-L21
	HP ML330 G6 Intel® Xeon® E5607 (2.26GHz/4-core/8MB/80W) FIO Processor Kit	637702-L21
	HP ML330 G6 Intel® Xeon® E5606 (2.13GHz/4-core/8MB/80W) FIO Processor Kit	637703-L21
	HP ML330 G6 Intel® Xeon® E5603 (1.60GHz/4-core/4MB/80W) FIO Processor Kit	637704-L21
	NOTE: Xeon E5500 DP family supports both Registered DIMMs and Unbuffered DIMMs. Xeon W3500 UP family supports only Unbuffered DIMMs.	
HP Memory	Registered DIMMs (RDIMMs)	
	HP 2GB (1x2GB) Dual Rank x8 PC3-10600 (DDR3-1333) Registered CAS-9 Memory Kit	500656-B21
	HP 4GB (1x4GB) Dual Rank x4 PC3-10600 (DDR3-1333) Registered CAS-9 Memory Kit	500658-B21
	HP 4GB (1x4GB) Single Rank x4 PC3-10600 (DDR3-1333) Registered CAS-9 Memory Kit	593339-B21
	HP 4GB (1x4GB) Single Rank x4 PC3L-10600 (DDR3-1333) Registered CAS-9 Low Power Memory Kit NOTE: Low Voltage DIMMs can only be used with Intel® Xeon® processor 5600 series processors.	604504-B21
	HP 8GB (1x8GB) Dual Rank x4 PC3-10600 (DDR3-1333) Registered CAS-9 Memory Kit	500662-B21

	HP 8GB (1x8GB) Dual Rank x4 PC3L-10600 (DDR3-1333) Registered CAS-9 Low Power Memory Kit NOTE: Low Voltage DIMMs can only be used with Intel® Xeon® processor 5600 series processors.	604506-B21
	HP 16GB (1x16GB) Quad Rank x4 PC3-8500 (DDR3-1066) Registered CAS-7 Memory Kit	500666-B21
	Unbuffered with ECC DIMMs (UDIMMs)	
	HP 1GB (1x1GB) Single Rank x8 PC3-10600 (DDR3-1333) Unbuffered CAS-9 Memory Kit	500668-B21
	HP 2GB (1x2GB) Dual Rank x8 PC3-10600 (DDR3-1333) Unbuffered CAS-9 Memory Kit	500670-B21
	HP 4GB (1x4GB) Dual Rank x8 PC3-10600 (DDR3-1333) Unbuffered CAS-9 Memory Kit	500672-B21
	NOTE: For detailed memory configuration rules and guidelines, please use the Online DDR3 Memory Configuration Tool: www.hp.com/go/ddr3memory-configurator. NOTE: PC3L is a low voltage memory.	
HP Drive Cage Options	Non-Hot Plug HDD Model	
	HP 5U G6 Large Form Factor Non-hot Plug Cage Factory Integrated Kit	500448-B21
	Hot Plug HDD Model	
	HP 5U Large Form Factor (LFF) Hot Plug Drive Cage Kit	487737-B21
	NOTE: Hot Plug SATA/SAS model and Non-hot plug SAS model requires a HP SATA or SAS RAID Controller. NOTE: Non-hot plug model supports up to 4 drives only and at least one NHP hard drive is required. NOTE: Embedded B110i controller can be enabled with hot plug functionality with the purchase of Smart Array Hot Plug Advance Pack (TC421A) and at least 1 hot plug HDD. NOTE: For 8 LFF Drive maximum support, 2 Hot Plug HDD Drive Cages and Smart Array controller 8 ports or 2x 4 ports.	
HP Power supplies	NOTE: Prior to making a power supply selection it is highly recommended that the HP Power Advisor is run to determine the right size power supply for your server configuration. The HP Power Advisor is located at: www.hp.com/go/hppoweradvisor.	
	HP 460W Factory Integrated Power Supply Kit	500447-B21
	HP 750W Common Slot Gold Hot Plug Power Supply Kit NOTE: The HP 750W power supply requires purchasing the Redundant Power Supply Enablement Kit (P/N 508544-B21).	512327-B21
	Power Options	
	HP 5U G6 Redundant Power Supply Enablement Kit NOTE: The Redundant Power Supply Enablement kit does not integrate any power supply. Two (2) units of 750W power supply are required to achieve redundancy.	508544-B21

Step 3: Choose Additional Factory Integratable Options

HP Storage Controllers	NOTE: SAS non-hot plug drives require the Non-Hot Plug Internal SAS/SATA 4 port Cable kit (P/N 487734-B21) and a HP SAS/Smart Array Controller. NOTE: HP NHP Internal SAS/SATA 4 Port Cable Kit (487734-B21) is required when adding Smart Array P410 Controller on Non-Hot Plug SATA/SAS server models.	
	HP Smart Array P212/256 BBWC 1-ports Int/1-ports Ext PCIe x8 FIO SAS Controller	491191-B21
	HP Smart Array P410/ZM 2-ports Int PCIe x8 FIO SAS Controller	462860-B21
	HP Smart Array P410/256 BBWC 2-ports Int PCIe x8 FIO SAS Controller	491195-B21
	HP Smart Array P411/256 BBWC 2-ports Ext PCIe x8 FIO SAS Controller NOTE: SAS Controller supports RAID 0/1/1+0/5.	491193-B21
HP Insight Software	HP Insight Control including 1yr 24x7 Support ProLiant ML/DL/BL-bundle Single Server FIO License	582765-B21
	HP Insight Control for Linux including 1yr 24x7 Support ML/DL Bundle 1 Server FIO License	TC203A

Step 4: Choose Additional Options for Factory Integration

NOTE: For additional options, please refer to the "Core Options" or "Additional Options" section below.

NOTE: Some options may not be integrated at the factory. To ensure only valid configurations are ordered, HP recommends the use of an HP approved configurator. Contact your local sales representative for additional information.

HP Processors	Six-Core Processors	
	HP ML330 G6 Intel® Xeon® X5650 (2.66GHz/6-core/12MB/95W) Processor Kit	603978-B21
	HP ML330 G6 Intel® Xeon® E5649 (2.53GHz/6-core/12MB/80W) Processor Kit	637705-B21
	HP ML330 G6 Intel® Xeon® E5645 (2.40GHz/6-core/12MB/80W) Processor Kit	637706-B21
	Quad-Core Processors	
	HP ML330 G6 Intel® Xeon® E5640 (2.66GHz/4-core/12MB/80W) Processor Kit	607122-B21
	HP ML330 G6 Intel® Xeon® E5630 (2.53GHz/4-core/12MB/80W) Processor Kit	603977-B21
	HP ML330 G6 Intel® Xeon® E5620 (2.40GHz/4-core/12MB/80W) Processor Kit	603976-B21
	HP ML330 G6 Intel® Xeon® E5607 (2.26GHz/4-core/8MB/80W) Processor Kit	637707-B21
	HP ML330 G6 Intel® Xeon® E5606 (2.13GHz/4-core/8MB/80W) Processor Kit	637708-B21
	HP ML330 G6 Intel® Xeon® E5603 (1.60GHz/4-core/4MB/80W) Processor Kit	637709-B21
	HP ML330 G6 Intel® Xeon® E5540 (2.53GHz/4-core/8MB/80W) Processor Kit	512716-B21
	HP ML330 G6 Intel® Xeon® E5530 (2.40GHz/4-core/8MB/80W) Processor Kit	512715-B21
	HP ML330 G6 Intel® Xeon® E5520 (2.26GHz/4-core/8MB/80W) Processor Kit	512714-B21
	HP ML330 G6 Intel® Xeon® E5507 (2.26 GHz/4-core/4MB/80W) Processor Kit	603975-B21
	HP ML330 G6 Intel® Xeon® E5506 (2.13GHz/4-core/4MB/80W) Processor Kit	512713-B21
	HP ML330 G6 Intel® Xeon® E5504 (2.0GHz/4-core/4MB/80W) Processor Kit	512712-B21
	Dual-Core Processors	
	HP ML330 G6 Intel® Xeon® E5503 (2.0GHz/2-core/4MB/80W) Processor Kit	603974-B21
	HP ML330 G6 Intel® Xeon® E5502 (1.86GHz/2-core/4MB/80W) Processor Kit	512711-B21

NOTE: Each processor kit includes (1) processor/(1) heatsink/ (1) Processor board. The processor board is integrated with (1) processor socket and (9) DIMM slots.
NOTE: When two (2) Xeon E5500 processors are installed, the system QPI will be locked at 4.8 GT/s.
NOTE: Xeon E5500 DP family supports both Registered DIMMs and Unbuffered DIMMs. Xeon W3500 UP family supports only Unbuffered DIMMs.

Core Options

HP Memory	**Registered DIMMs (RDIMMs)**	
	HP 2GB (1x2GB) Dual Rank x8 PC3-10600 (DDR3-1333) Registered CAS-9 Memory Kit	500656-B21
	HP S-Buy 2GB (1x2GB) Dual Rank x8 PC3-10600 (DDR3-1333) Registered CAS-9 Memory Kit	500656-S21
	HP 4GB (1x4GB) Dual Rank x4 PC3-10600 (DDR3-1333) Registered CAS-9 Memory Kit	500658-B21
	HP S-Buy 4GB (1x4GB) Dual Rank x4 PC3-10600 (DDR3-1333) Registered CAS-9 Memory Kit	500658-S21
	HP 4GB (1x4GB) Single Rank x4 PC3-10600 (DDR3-1333) Registered CAS-9 Memory Kit	593339-B21
	HP S-Buy 4GB (1x4GB) Single Rank x4 PC3-10600 (DDR3-1333) Registered CAS-9 Memory Kit	593339-S21
	HP 4GB (1x4GB) Single Rank x4 PC3L-10600 (DDR3-1333) Registered CAS-9 Low Power Memory Kit NOTE: Low Voltage DIMMs can only be used with Intel® Xeon® processor 5600 series processors.	604504-B21
	HP 8GB (1x8GB) Dual Rank x4 PC3-10600 (DDR3-1333) Registered CAS-9 Memory Kit	500662-B21
	HP S-Buy 8GB (1x8GB) Dual Rank x4 PC3-10600 (DDR3-1333) Registered CAS-9 Memory Kit	500662-S21
	HP 8GB (1x8GB) Dual Rank x4 PC3L-10600 (DDR3-1333) Registered CAS-9 Low Power Memory Kit NOTE: Low Voltage DIMMs can only be used with Intel® Xeon® processor 5600 series processors.	604506-B21
	HP 16GB (1x16GB) Quad Rank x4 PC3-8500 (DDR3-1066) Registered CAS-7 Memory Kit	500666-B21
	HP S-Buy 16GB (1x16GB) Quad Rank x4 PC3-8500 (DDR3-1066) Registered CAS-7 Memory Kit	500666-S21
	Unbuffered with ECC DIMMs (UDIMMs)	
	HP 1GB (1x1GB) Single Rank x8 PC3-10600 (DDR3-1333) Unbuffered CAS-9 Memory Kit	500668-B21
	HP 2GB (1x2GB) Dual Rank x8 PC3-10600 (DDR3-1333) Unbuffered CAS-9 Memory Kit	500670-B21
	HP S-Buy 2GB (1x2GB) Dual Rank x8 PC3-10600 (DDR3-1333) Unbuffered CAS-9 Memory Kit	500670-S21
	HP 4GB (1x4GB) Dual Rank x8 PC3-10600 (DDR3-1333) Unbuffered CAS-9 Memory Kit	500672-B21
	HP S-Buy 4GB (1x4GB) Dual Rank x8 PC3-10600 (DDR3-1333) Unbuffered CAS-9 Memory Kit	500672-S21
	NOTE: For detailed memory configuration rules and guidelines, please use the Online DDR3 Memory Configuration Tool: www.hp.com/go/ddr3memory-configurator. NOTE: PC3L is a low voltage memory.	

Core Options

HP Optical Drives	HP Half-Height SATA DVD-ROM Optical Drive	447326-B21
	HP Half-Height SATA DVD-RW Optical Drive	447328-B21
HP Drive Cage Options	HP 5U Large Form Factor (LFF) Hot Plug Drive Cage Kit	487737-B21
	NOTE: To reach maximum 8 LFF Drive support, it is required to purchase 2 Hot Plug HDD Drive Cages and Smart Array controller 8 ports or 2x 4 ports.	
HP Hard Drives	NOTE: The components of a storage subsystem (e.g. the drive, the HBA/controller, firmware, and the server backplane) should operate at the same data transfer rate or the system bandwidth will be negotiated down to an acceptable level for all components.	
	NOTE: Hard drives have either a one year or three year warranty; refer to the specific hard drive QuickSpecs for details.	
	NOTE: SAS Non-Hot Plug and SAS Hot Plug Models require HP SAS Smart Array Controller.	
	SAS Hot Plug LFF (3.5-inch) Enterprise (ENT) Drives	
	HP 600GB 6G SAS 15K rpm LFF (3.5-inch) Dual Port Enterprise 3yr Warranty Hard Drive	516828-B21
	HP 450GB 6G SAS 15K rpm LFF (3.5-inch) Dual Port Enterprise 3yr Warranty Hard Drive	516816-B21
	HP 300GB 6G SAS 15K rpm LFF (3.5-inch) Dual Port Enterprise 3yr Warranty Hard Drive	516814-B21
	SAS Non-Hot Plug LFF (3.5-inch) Enterprise (ENT) Drives	
	HP 600GB 6G SAS 15K rpm LFF (3.5-inch) Non-hot Plug Dual Port Enterprise 3yr Warranty Hard Drive	516830-B21
	HP 450GB 6G SAS 15K rpm LFF (3.5-inch) Non-hot Plug Dual Port Enterprise 3yr Warranty Hard Drive	516826-B21
	HP 300GB 6G SAS 15K rpm LFF (3.5-inch) Non-hot Plug Dual Port Enterprise 3yr Warranty Hard Drive	516824-B21
	SAS Hot Plug LFF (3.5-inch) Midline (MDL) Drives	
	HP 3TB 6G SAS 7.2K rpm LFF (3.5-inch) Midline 1yr Warranty Hard Drive	625031-B21
	HP 2TB 6G SAS 7.2K rpm LFF (3.5-inch) Dual Port Midline 1yr Warranty Hard Drive	507616-B21
	HP 1TB 6G SAS 7.2K rpm LFF (3.5-inch) Dual Port Midline 1yr Warranty Hard Drive	507614-B21
	NOTE: Please see the QuickSpecs for Technical Specifications and additional information: http://h18000.www1.hp.com/products/quickspecs/12244_na/12244_na.html	
	SATA Hot Plug LFF (3.5-inch) Midline (MDL) Drives	
	HP 3TB 3G SATA 7.2K rpm LFF (3.5-inch) Midline 1yr Warranty Hard Drive	628059-B21
	HP 2TB 3G SATA 7.2K rpm LFF (3.5-inch) Midline 1yr Warranty Hard Drive	507632-B21
	HP 1TB 3G SATA 7.2K rpm LFF (3.5-inch) Midline 1yr Warranty Hard Drive	454146-B21
	HP 1TB 3G SATA 7.2K rpm LFF (3.5-inch) Midline 1yr Warranty Hard Drive S-Buy	454146-S21
	HP 500GB 3G SATA 7.2K rpm LFF (3.5-inch) Midline 1yr Warranty Hard Drive	458928-B21
	SATA Non-Hot Plug LFF (3.5-inch) Midline (MDL) Drives	

	HP 2TB 3G SATA 7.2K rpm LFF (3.5-inch) Non-hot Plug Midline 1yr Warranty Hard Drive	507774-B21
	HP 1TB 3G SATA 7.2K rpm LFF (3.5-inch) Non-hot Plug Midline 1yr Warranty Hard Drive	507772-B21
	HP 500GB 3G SATA 7.2K rpm LFF (3.5-inch) Non-hot Plug Midline 1yr Warranty Hard Drive	458941-B21
	SATA Hot Plug LFF (3.5-inch) Entry (ETY) Drives	
	HP 250GB 3G SATA 7.2K rpm LFF (3.5-inch) Entry 1yr Warranty Hard Drive	571230-B21
	HP 160GB 3G SATA 7.2K rpm LFF (3.5-inch) Entry 1yr Warranty Hard Drive	458945-B21
	SATA Non-Hot Plug LFF (3.5-inch) Entry (ETY) Drives	
	HP 250GB 3G SATA 7.2K rpm LFF (3.5-inch) Non-hot Plug Entry 1yr Warranty Hard Drive	571232-B21
	HP 160GB 3G SATA 7.2K rpm LFF (3.5-inch) Non-hot Plug Entry 1yr Warranty Hard Drive	458947-B21
	NOTE: Please see the QuickSpecs for Technical Specifications and additional information: http://h18000.www1.hp.com/products/quickspecs/13021_na/13021_na.html	
	SATA Hot Plug 3.5" Enterprise Mainstream Solid State Drives	
	HP 400GB 3G SATA MLC LFF (3.5-inch) Enterprise Mainstream 3yr Warranty Solid State Drive	636611-B21
	HP 200GB 3G SATA MLC LFF (3.5-inch) Enterprise Mainstream 3yr Warranty Solid State Drive	636609-B21
	HP 100GB 3G SATA MLC LFF (3.5-inch) Enterprise Mainstream 3yr Warranty Solid State Drive	636607-B21
	NOTE: Please see the QuickSpecs for Technical Specifications and additional information: http://h18000.www1.hp.com/products/quickspecs/13415_na/13415_na.html	
HP Networking	Gigabit Ethernet Adapters	
	HP NC112T PCI Express Gigabit Server Adapter	503746-B21
	HP NC360T PCI-E Dual Port Gigabit Server Adapter	412648-B21
	HP NC364T PCI-E Quad Port Gigabit Server Adapter	435508-B21
	HP NC365T 4-port Ethernet Server Adapter	593722-B21
	HP NC373F PCI-E Multifunction 1000SX Gigabit Svr Adapter	394793-B21
	HP NC373T PCI-E Multifunction Gigabit Server Adapter	394791-B21
	HP NC375T PCI Express Quad Port Gigabit Server Adapter	538696-B21
	HP NC382T PCI Express Dual Port Multifunction Gigabit Server Adapter	458492-B21
	10 Gigabit Ethernet Adapters NOTE: No more than two 10GbE I/O devices are supported in a single ProLiant server. NOTE: A minimum of two Gigabytes (2 GB) of server memory is required per each adapter. NOTE: Direct Attach Cable (DAC) for copper environments or fiber transceivers and cables for fiber-optic environments must be purchased separately.	
	HP NC522SFP Dual Port 10GbE Gigabit Server Adapter	468332-B21

Core Options

	HP NC523SFP 10Gb 2-port Server Adapter	593717-B21
	HP NC550SFP Dual Port 10GbE Server Adapter	581201-B21
	NOTE: Please see the QuickSpecs for Technical Specifications and additional information: www.hp.com/go/ProLiantNICs	
HP I/O Expansion Options	HP Dedicated iLO Management Port Option	514206-B21
	HP Non-Hot Plug Internal SAS/SATA 4 Port Cable Kit	487734-B21
	NOTE: SAS non-hot plug drives require the Non-Hot Plug Internal SAS/SATA 4 port Cable kit (P/N 487734-B21) and a HP SAS/Smart Array Controller.	
	HP ML350/ML330G6 2 Slot PCI-X Riser Kit	488413-B21
HP Power Supplies	NOTE: Prior to making a power supply selection it is highly recommended that the HP Power Advisor is run to determine the right size power supply for your server configuration. The HP Power Advisor is located at: www.hp.com/go/hppoweradvisor.	
	HP 750W Common Slot Gold Hot Plug Power Supply Kit	512327-B21
	NOTE: The HP 750W power supply requires purchasing the Redundant Power Supply Enablement Kit (P/N 508544-B21).	
	Power Options	
	HP 5U G6 Redundant Power Supply Enablement Kit	508544-B21
	NOTE: The Redundant Power Supply Enablement kit does not integrate any power supply. Two (2) units of 750W power supply are required to achieve redundancy.	
HP Cooling Options	HP 5U G6 Redundant fan kit	513927-B21
	NOTE: Option Kits contain optional power supply, an IEC power cable and PDU IEC cables.	
	NOTE: If customer orders the standalone redundant fan option kit, he/she will receive two (2) fans in a two-fan packaged box. Only one (1) fan is required for system redundancy. The other one can be saved as a spare part. If customer orders the redundant fan kit along with the server, he/she will not be receiving the extra fan.	

NOTE: Some options may not be integrated at the factory. To ensure only valid configurations are ordered, HP recommends the use of an HP approved configurator. Contact your local sales representative for additional information.

HP Insight Software	HP Insight Control	
	HP Insight Control including 1yr 24x7 Technical Support and Updates Electronic License	T9074BAE
	HP Smart Buy Insight Control suite, No Media, Electronic License including 1 year of 24x7 Technical Support and Updates	T9074ASE
	HP Insight Control including 1yr 24x7 Support ProLiant ML/DL/BL-bundle Electronic License	TC278AAE
	HP Insight Control including 1yr 24x7 Technical Support and Updates Single Server License	452148-B22
	HP Smart Buy Insight Control including 1yr 24x7 Technical Support and Updates Single Server License	452148-S22
	HP Insight Control including 1yr 24x7 Support ProLiant ML/DL/BL-bundle Tracking License	TC275A
	HP Insight Software Media Kit NOTE: Insight Software DVD media without licenses. Contains HP Systems Insight Manager, HP Insight Control, HP Insight Dynamics, HP Insight Control for Microsoft System Center, and Virtual Connect Enterprise Manager software. Uses an integrated installer to perform quick and accurate software installation and updates. NOTE: Electronic and Flexible-Quantity licenses can be used to purchase multiple licenses with a single activation key. NOTE: Customer will receive a license entitlement certificate. The license entitlement certificate must be redeemed online or via fax in order to obtain the license activation key(s). Includes one year of 24 x 7 HP Software Technical Support and Update Service. NOTE: Licenses ship without media. The HP Insight Control Media Kit can be ordered separately, or can be downloaded at: http://www.hp.com/go/insightupdates. NOTE: For additional license options please see the Insight Control QuickSpecs at: http://h18000.www1.hp.com/products/quickspecs/12631_na/12631_na.html	436222-B21
	HP Insight Control for Linux	
	HP Insight Control for Linux including 1yr 24x7 Support Electronic License	TC213AAE
	HP Smart Buy Insight Control for Linux, 1-server license, including one year of 24x7 Technical Support and Updates, Electronic	TC213ASE
	HP Insight Control for Linux including 1yr 24x7 Support Single Server License	TC209A
	HP Insight Control for Linux Media Kit NOTE: Media pack DVD contains the ISO image for HP Insight Control for Linux, HP Systems Insight Manager, HP Insight Control power management, HP Insight Control virtual machine management, and an integrated installer. Servers must be acquired separately. NOTE: Licenses ship without media. The Media Kit for Insight Control for Linux can be ordered separately, or can be downloaded at: http://www.hp.com/go/ic-linux (click on Download button). NOTE: Electronic and Flexible-Quantity licenses can be used to purchase multiple licenses with a single set of activation keys. NOTE: For additional License Kits, including electronic licensing options, please see the QuickSpecs at:	TC208A

	http://h18000.www1.hp.com/products/quickspecs/13019_na/13019_na.html	
	HP Integrated Lights-Out (iLO) Advanced	
	HP iLO Advanced including 1yr 24x7 Technical Support and Updates Electronic License	TA850AAE
	HP iLO Advanced including 1yr 24x7 Technical Support and Updates Single Server License	512485-B21
	NOTE: This license allows 1 server to be deployed and managed via HP iLO Advanced. Customer will receive a printed license entitlement certificate via physical shipment. The license entitlement certificate must be redeemed online or via fax in order to obtain the license activation key(s). Includes one year of 24 x 7 HP Software Technical Support Service. NOTE: For additional license kits, including electronic delivery options, please see the QuickSpecs at: http://h18000.www1.hp.com/products/quickspecs/12362_na/12362_na.html	
	HP Insight Control server deployment	
	HP Insight Control Server Deployment including 1yr 24x7 Support Electronic License	T9082AAE
	HP Insight Control Server Deployment including 1yr 24x7 Support Single Server License	452151-B21
	NOTE: Licenses ship without media. The Insight Control Media Kit can be ordered separately, or can be downloaded at: http://www.hp.com/go/insightupdates. NOTE: Electronic licenses can be used to purchase multiple licenses with a single activation key. NOTE: Customer will receive a license entitlement certificate, which must be redeemed online or via fax in order to obtain the license activation key(s). Includes one year of 24 x 7 HP Software Technical Support Service. NOTE: For additional license kits please see the Insight Control QuickSpecs at: http://h18004.www1.hp.com/products/quickspecs/12631_na/12631_na.html	
HP Security - TPM	HP Trusted Platform Module Option	488069-B21
	NOTE: The TPM (Trusted Platform Module) is a microcontroller chip that can securely store artifacts used to authenticate the server platform. These artifacts can include passwords, certificates and encryption keys. Windows® BitLocker™ Drive Encryption (BitLocker) is a data protection feature available in Windows Server® 2008. BitLocker leverages the enhanced security capabilities of a Trusted Platform Module (TPM) version 1.2. The TPM works with BitLocker to help protect user data and to ensure that a server running Windows Server 2008 has not been tampered with while the system was offline. For more information about TPM, including a white paper, go to: www.hp.com/go/TPM. NOTE: ProLiant OS pre-installed units will come with the partition required for TPM deployment. NOTE: The TPM key is unique to every TPM deployed server and must be retained. Misplacing or loosing the key could result in data loss.	
HP Storage Controllers	SAS Controllers NOTE: SAS non-hot plug drives require the Non-Hot Plug Internal SAS/SATA 4 port Cable kit (P/N 487734-B21) and a HP SAS/Smart Array Controller.	
	Smart Array P800 Controller	

HP Smart Array P800/512 BBWC 2-ports Int/2-ports Ext PCIe x8 SAS Controller	381513-B21
Smart Array P212 Controller	
HP Smart Array P212/ZM 1-ports Int/1-ports Ext PCIe x8 SAS Controller	462828-B21
HP Smart Array P212/256 1-ports Int/1-ports Ext PCIe x8 SAS Controller	462834-B21
Smart Array P410 Controller	
NOTE: HP NHP Internal SAS/SATA 4 Port Cable Kit (487734-B21) is required when adding Smart Array P410 Controller on Non-Hot Plug SATA/SAS server models.	
HP Smart Array P410/256 2-ports Int PCIe x8 SAS Controller	462862-B21
HP Smart Array P410/512 BBWC 2-ports Int PCIe x8 SAS Controller	462864-B21
HP Smart Array P410/512 FBWC 2-ports Int PCIe x8 SAS Controller	578230-B21
HP Smart Array P410/1G FBWC 2-ports Int PCIe x8 SAS Controller	572532-B21
Smart Array P411 Controller	
HP Smart Array P411/256 2-ports Ext PCIe x8 SAS Controller	462830-B21
HP Smart Array P411/512 BBWC 2-ports Ext PCIe x8 SAS Controller	462832-B21
HP Smart Array P411/512 FBWC 2-ports Ext PCIe x8 SAS Controller	578229-B21
HP Smart Array P411/1G FBWC 2-ports Ext PCIe x8 SAS Controller	572531-B21
Smart Array P812 Controller	
HP Smart Array P812/1G FBWC 2-ports Int/4-ports Ext PCIe x8 SAS Controller	487204-B21
Upgrade Options	
HP Mini SAS to Mini SAS 33in Cable Assembly NOTE: This cable option kit is needed to upgrade from hot plug SATA to hot plug SAS.	496014-B21
HP Hot Plug Internal SATA to Mini SAS Cable Kit NOTE: This cable needed when upgrade from non-hot plug SATA to hot plug SATA.	600732-B21
HP 256MB P-series Cache Upgrade NOTE: Supported on HP Smart Array P212 and P410/ZM Controllers only.	462968-B21
HP 512MB P-Series Battery Backed Write Cache Upgrade	462967-B21
HP 650 mAh P-Series Battery NOTE: To enable BBWC on the 256MB cache. NOTE: Supported on HP Smart Array P212, P410, and P411 Controllers only.	462969-B21
HP 8484 to Mini SAS 33in Cable Assembly NOTE: Cable used to connect the Smart Array P800 Controller to internal hard disk drives on selected HP ProLiant G6 Servers.	591734-B21
HP 512MB Flash Backed Write Cache	534916-B21
HP 1GB Flash Backed Cache	534562-B21
HP Smart Array Advanced Pack including 1yr 24x7 Technical Support and Updates Single Server License NOTE: This part number can be used to purchase a single license or to order multiple licenses with a single activation key. Customers will receive a license entitlement certificate via e-mail. The license entitlement certificate must be redeemed online or via fax in order to obtain the license activation key(s). Include one year of 24x7 HP Software Technical Support Services.	516471-B21
HP Smart Array Hot Plug Advance Pack for B110i w/1y 24x7 Supp Physical 1 Svr LTU	TC421A
NOTE: Please see the following QuickSpecs additional information: http://h18000.www1.hp.com/products/quickspecs/12616_na/12616_na.html	

	(Smart Array P800 Controller) http://h18000.www1.hp.com/products/quickspecs/13203_na/13203_na.html (Smart Array P212 Controller) http://h18000.www1.hp.com/products/quickspecs/13201_na/13201_na.html (Smart Array P410 Controller) http://h18000.www1.hp.com/products/quickspecs/13202_na/13202_na.html (Smart Array P411 Controller) http://h18000.www1.hp.com/products/quickspecs/13558_na/13558_na.html (Smart Array P812 Controller) http://h18000.www1.hp.com/products/quickspecs/13200_na/13200_na.html (Smart Array Advanced Pack) http://h18000.www1.hp.com/products/quickspecs/13495_na/13495_na.html (Smart Array Hot Plug Advance Pack for B110i)	
	SAS HBA	
	HP Modular Smart Array SC08e 2-ports Ext PCIe x8 SAS Host Bus Adapter NOTE: This is a 2 x4 External Port HBA NOTE: This is only approved for the HP P2000 G3 SAS Modular Smart Array. NOTE: Please see the HBA QuickSpecs for additional information: http://h18004.www1.hp.com/products/quickspecs/13651_na/13651_na.html (SC08e 6Gb HBA)	614988-B21
	SCSI HBA	
	HP SC11Xe Ultra320 Single Channel/ PCIe x4 SCSI Host Bus Adapter NOTE: Recommended for SCSI tape drive connection. NOTE: Please see the following QuickSpecs for additional information: http://h18000.www1.hp.com/products/quickspecs/12566_na/12566_na.html (SC11Xe HBA)	412911-B21
HP Backup & Recovery Software	Data Protector Express	
	HP Data Protector Express V5.0 for 1 Server E-LTU	TC330AAE
	HP Data Protector Express V5.0 for 3 Servers E-LTU	TC331AAE
	HP Data Protector Express V5.0 for 10 Servers E-LTU	TC332AAE
	HP Basic Upgrade to Data Protector Express V5 for 1 Server E-LTU	TC333AAE
	NOTE: One of these Data Protector Express base products is required. To see available options: http://www.hp.com/go/dataprotectorexpress	

Additional Options

Tape Backup	NOTE: For the complete range of tape drives, autoloaders, libraries and media see: http://www.hp.com/go/tape. For hardware and software compatibility of HP tape backup products see: http://www.hp.com/go/connect.	
	Rack-Mount Tape Solutions	
	HP DAT 160 SCSI Internal Tape Drive	Q1573A
	HP DAT 160 USB Internal Tape Drive	Q1580A
	HP DAT 320 USB Internal Tape Drive	AJ825A
	HP 1/8 G2 LTO-4 Ultrium 1760 SAS Tape Autoloader NOTE: Requires HP 1U Tape Autoloader Rack Kit (AH166A) for rack installation.	AK377A
	HP DAT 320 SAS Internal Tape Drive NOTE: Recommended to use HP P212 SAS Smart Array Controller (462828-B21) for connection.	AJ830A
	HP Ultrium 448 SAS Internal Drive NOTE: Recommended to use HP P212 SAS Smart Array Controller (462828-B21) for connection.	DW085A
	HP Ultrium 920 SAS Internal Tape Drive NOTE: Recommended to use HP P212 SAS Smart Array Controller (462828-B21) for connection.	EH847A
	HP LTO-4 Ultrium 1760 SAS Internal Tape Drive NOTE: Recommended to use HP P212 SAS Smart Array Controller (462828-B21) for connection.	EH919A
	HP LTO-4 Ultrium 1840 SAS External Drive NOTE: Recommended to use HP P212 SAS Smart Array Controller (462828-B21) for connection.	EH861A
	HP LTO-5 Ultrium 3000 SAS Internal Tape Drive NOTE: Recommended to use HP P212 SAS Smart Array Controller (462828-B21) for connection.	EH957A
	HP LTO-5 Ultrium 3000 SAS External Tape Drive NOTE: Recommended to use HP P212 SAS Smart Array Controller (462828-B21) for connection.	EH958A
	HP 1/8 G2 LTO-5 Ultrium 3000 SAS Tape Autoloader NOTE: Requires HP 1U Tape Autoloader Rack Kit (AH166A) for rack installation. NOTE: Recommended to use HP P212 SAS Smart Array Controller (462828-B21) for connection.	BL536A
	HP MSL2024 1 LTO-4 Ultrium 1760 SAS Tape Library	AK378A
	HP MSL2024 1 LTO-5 Ultrium 3000 SAS Tape Library NOTE: Recommended to use HP P212 SAS Smart Array Controller (462828-B21) for connection.	BL537A
	HP MSL4048 2 LTO-4 Ultrium 1760 SAS Tape Library	AK380A
	HP MSL4048 2 LTO-5 Ultrium 3000 SAS Tape Library NOTE: Recommended to use HP P212 SAS Smart Array Controller (462828-B21) for connection.	BL538A

Additional Options

Disk Backup	NOTE: For the complete range of D2D Backup Systems see: http://www.hp.com/go/d2d. For the complete range of RDX drives and media see: http://www.hp.com/go/rdx. For hardware and software compatibility of HP disk backup products see: http://www.hp.com/go/connect.	
	HP D2D Backup Systems with Backup Data Deduplication	
	HP D2D2502i Backup System NOTE: 1.5TB of useable network disk backup capacity. Network connected appliance with connectivity using the iSCSI protocol. If the server requires a hardware iSCSI initiator, the QLogic QLA4050 Host Bus Adapter is recommended.	EJ001B
	HP D2D2504i Backup System NOTE: 3.0TB of useable network disk backup capacity. Network connected appliance with connectivity using the iSCSI protocol. If the server requires a hardware iSCSI initiator, the QLogic QLA4050 Host Bus Adapter is recommended.	EJ002B
	HP D2D4112 Backup System NOTE: 9.0TB (expandable to 18.0TB) of useable network disk backup capacity. Fibre Channel SAN connected appliance. Direct server attach is not supported, requires connection via SAN fabric.	EH993B
	HP RDX Removable Disk Backup Systems USB	
	HP StorageWorks RDX160 Internal Removable Disk Backup System NOTE: 160GB of disk capacity per data cartridge.	AJ765A
	HP StorageWorks RDX320 Internal Removable Disk Backup System NOTE: For installation into 1U USB Rack-Mount Kit (A8007A). No peripheral bay available for drive installation into the server. 320GB of disk capacity per data cartridge.	AJ767A
	HP StorageWorks RDX500 Internal Removable Disk Backup System NOTE: For installation into 1U USB Rack-Mount Kit (A8007A). No peripheral bay available for drive installation into the server. 500GB of disk capacity per data cartridge.	AJ934A
	HP StorageWorks RDX1000 Internal Removable Disk Backup System NOTE: For installation into 1U USB Rack-Mount Kit (A8007A). No peripheral bay available for drive installation into the server. 1 TB of disk capacity per data cartridge.	BV847A
HP Storage Options	Storage SCSI HBA	
	HP U320e SCSI Dual Channel Host Bus Adapter NOTE: Recommended HBA for MSL SCSI Tape Library connect.	AH627A

Additional Options

HP Disk Storage Systems	MSA SAN Storage Arrays	
	HP MSA70 Array	418800-B21
	NOTE: Please see the QuickSpecs for additional options and configuration information at: http://h18000.www1.hp.com/products/quickspecs/12652_na/12652_na.html	
	Disk Enclosures	
	HP D2600 Disk Enclosure	AJ940A
	HP D2700 Disk Enclosure	AJ941A
	NOTE: Please see the QuickSpecs for additional options and configuration information at: http://h18000.www1.hp.com/products/quickspecs/13404_na/13404_na.html	
HP Uninterruptible Power Systems	HP Tower UPS	
	HP T1000 G3 UPS Models	
	HP T1000 G3 1000VA Tower Uninterruptible Power System	AF448A
	HP T1500 G3 UPS Models	
	HP T1500 G3 1400VA Tower Uninterruptible Power System	AF450A
	NOTE: Please see the QuickSpecs for additional information: http://h18000.www1.hp.com/products/quickspecs/13160_na/13160_na.html	
	R5000 Uninterruptible Power System (UPS)	
	HP R5KVA 3U L630 High Voltage Uninterruptible Power System	AF460A
	NOTE: Please see the QuickSpecs for additional information: http://h18000.www1.hp.com/products/quickspecs/14109_na/14109_na.html	
	R7000 Uninterruptible Power System (UPS)	
	HP R7KVA 4U 50A High Voltage Uninterruptible Power System	AF462A
	NOTE: Please see the QuickSpecs for additional information: http://h18000.www1.hp.com/products/quickspecs/14110_na/14110_na.html	
	NOTE: For additional information on HP Uninterruptible Power Systems please go to: www.hp.com/servers/rackups.	
	NOTE: For additional information on sizing your server, please reference: http://www.upssizer.com	
	NOTE: Please see the UPS and PDU cable matrix's on the HP Power Protection and Management page. Under Power Cords, click on the "HP Power Cord Matrix" link. That link will list cable descriptions, requirements, and specifications for UPS and PDU units. Please see the following link: www.hp.com/products/powercords.	

Additional Options

HP Rack Series	HP Rack 10000 G2 Series (Carbon/Graphite Metallic)	
	HP 10642 G2 Pallet Universal Rack	AF001A
	HP 10642 G2 Shock Universal Rack	AF002A
	NOTE: It is mandatory to use a shock pallet when shipping racks with equipment installed.	
	NOTE: Please see the QuickSpecs for Technical Specifications such as height, width, depth, weight, and color: http://h18000.www1.hp.com/products/quickspecs/12402_na/12402_na.html	
	NOTE: For additional information regarding Rack Cabinets, please see the following URL: http://www.hp.com/go/rackandpower.	
	NOTE: The increasing power of new high-performance processor technology requires increased cooling efficiency for rack-mounted servers. The 10000 G2 Series Racks provide enhanced airflow for maximum cooling, allowing these racks to be fully loaded with servers using the latest processors. CAUTION: If a third-party rack is used, observe the following additional requirements to ensure adequate airflow and to prevent damage to the equipment: Front and rear doors: If your 42U server rack includes closing front and rear doors, you must allow 830 square inches (5,350 sq cm) of hole evenly distributed from top to bottom to permit adequate airflow (equivalent to the required 64 percent open area for ventilation). Side: The clearance between the installed rack component and the side panels of the rack must be a minimum of 2.75 inches (7 cm). CAUTION: Always use blanking panels to fill all remaining empty front panel U-spaces in the rack. This arrangement ensures proper airflow. Using a rack without blanking panels results in improper cooling that can lead to thermal damage.	
	NOTE: Quick deploy rail system provides tool-free support for racks with square or round mounting holes (including Compaq/HP 7000, 9000, 10000 G2 and HP series), with an adjustment range of 24" - 36". The ambidextrous cable management arm can be mounted on either the left or right side for improved cable management.	

HP Rack Options	HP Server Console Switches	
	HP Server Console 0x2x8 Port Analog Switch	AF616A
	HP Server Console 0x2x16 Port Analog Switch	AF617A
	NOTE: Please see the QuickSpecs for Technical Specifications and additional information: http://h18000.www1.hp.com/products/quickspecs/11834_na/11834_na.html	
	HP Server Console Switch G2 with Virtual Media & CAC	
	HP 0x2x16 KVM Server Console Switch G2 with Virtual Media CAC Software	AF618A
	HP 0x2x32 KVM Server Console Switch G2 with Virtual Media CAC Software	AF619A
	NOTE: Please see the QuickSpecs for Technical Specifications and additional information: http://h18000.www1.hp.com/products/quickspecs/13475_na/13475_na.html	
	HP IP Console Switch G2 with Virtual Media & CAC	
	HP 1x1Ex8 KVM IP Console Switch G2 with Virtual Media CAC Software	AF620A
	HP 2x1Ex16 KVM IP Console Switch G2 with Virtual Media CAC Software	AF621A
	HP 4x1Ex32 KVM IP Console Switch G2 with Virtual Media CAC Software	AF622A

Additional Options

	NOTE: Please see the QuickSpecs for Technical Specifications and additional information: http://h18000.www1.hp.com/products/quickspecs/13474_na/13474_na.html	
	Rack Kit	
	HP Tower to Rack Conversion Tray Universal Kit	417705-B21
HP USB and SD Options	HP USB 2-Button Optical Scroll Mouse	DC172B
	HP USB 04 Standard Keyboard	DT528A#ABA
	HP 4GB Secure Digital High Capacity Flash Media Kit NOTE: Blank SD media device is supported for use with VMware and Citrix. SD media must be installed in the internal slot of the ProLiant server. Learn more at: http://www.hp.com/go/proliantvirtualization.	580387-B21
	HP 2GB USB Flash Media Drive Key Kit NOTE: HP qualified blank USB key for use with HP ProLiant servers that support the VMware virtualization environment and other HP value-add software like SmartStart. HP recommends this industry standard USB flash device for use with VMware ESXi. USB device must be installed in the internal slot of the ProLiant server for use with VMware ESXi. Refer to HP VMware Getting Started Guide for installation instructions.	608447-B21
HP Care Pack Services	Hardware Services	
	HP 3 year Next business day ProLiant ML330 Hardware Support	UM870E
	HP 3 year 4hour 13x5 ProLiant ML330 Hardware Support	UM872E
	HP 3 year 4hour 24x7 ProLiant ML330 Hardware Support	UM874E
	HP 3 year 6hour 24x7 Call to Repair ProLiant ML330 Hardware Support	UM876E
	Other Services	
	HP 4 year 4hour 13x5 ProLiant ML330 Hardware Support	UM880E
	HP 4 year 4hour 24x7 ProLiant ML330 Hardware Support	UM882E
	HP 5 year 4 hour 13x5 ProLiant ML330 Hardware Support	UM888E
	HP 5 year 4 hour 24x7 ProLiant ML330 Hardware Support	UM890E
	Support Plus	
	HP 3 year SupportPlus24 Microsoft ProLiant ML330 Service	UM894E
Smart Buy Care Packs	S-Buy 4-Hour Onsite Response, 13-Hour x 5-Day Coverage, 3 years	US357E
	S-Buy 4-Hour Onsite Response, 24-Hour x 7-Day Coverage, 3 years	US358E
	S-Buy 6-Hour Call to Repair, 24-Hour x 7-Day Coverage, 3 years	US359E
	NOTE: Smart Buy Care Packs can only be attached to Smart Buy SKUs	
	NOTE: For more information, customer/resellers can contact: http://www.hp.com/services/carepack	

NOTE: Memory configurations listed do not apply to "Factory Integrated Models".

DDR3 memory population guidelines

For detailed memory configuration rules and guidelines, please use the Online DDR3 Memory Configuration Tool: www.hp.com/go/ddr3memory-configurator

Some DIMM installation guidelines are summarized below:

- For servers with eighteen (18) memory slots:
  - There are three (3) channels per processor; six (6) channels per server
  - There are three (3) DIMM slots for each memory channel; eighteen (18) total slots
  - Memory channel 1 consists of the three (3) DIMMs that are closest to the processor
  - Memory channel 3 consists of the three (3) DIMMs that are furthest from the processor
- DIMM slots that are white should be populated first
- Do not mix Unbuffered memory (UDIMMs) with Registered memory (RDIMMs)
- Do not install DIMMs if the corresponding processor is not installed
- If only one processor is installed in a 2CPU system, only half of the DIMM slots are available
- To maximize performance, balance the total memory capacity between all installed processors
- It is not required, but it is recommended to load the channels similarly if possible
- If any Quad rank DIMMs are installed, all channels are limited to only 2 DIMMs per channel.
- You can only install two quad-rank DIMMs per channel
- You can only install two UDIMMs per channel; if available, the third slot in the channel must remain empty
- Populate DIMMs from heaviest load (quad-rank) to lightest load (single-rank) within a channel
- Heaviest load (DIMM with most ranks) within a channel goes furthest from the chipset
- For memory mirroring mode, channel 3 must be unpopulated. Channels 1 and 2 are populated identically
- For lock-step mode, channel 3 must be unpopulated. DIMMs in channels 1 and 2 will be installed in pairs. The paired slots will be 1,4; 2,5; 3;6 on a 3DPC system or 1,4; 2,5; on a 2DPC system
- Low Voltage DIMMs can only be used with Intel® Xeon® processor 5600 series processors
- If mixing DIMM voltage is a requirement, please note that the DIMMs will run at 1.5V since all 1.35V are capable of supporting 1.5V operations

DIMM slot/capacity/populated speed table										
DIMM Type	Registered DIMMS (RDIMMs)							Unbuffered with ECC DIMMs (UDIMMs)		
DIMM Rank	Single Rank (1R)	Dual Rank (2R)				Quad Rank (4R)		Single Rank (1R)	Dual Rank (2R)	
DIMM Capacity	4GB	2GB	4GB	8GB	8GB	4GB	16GB	1GB	2GB	4GB
DIMM Native Speed (MHz)	1333	1333	1333	1066	1333	1066	1066	1333	1333	1333
Voltage	LV/Reg	Reg	Reg	Reg	LV/Reg	Reg	Reg	Reg	Reg	Reg
	SLOTS THAT CAN BE POPULATED									
18 slot servers	18	18	18	18	18	12	12	12	12	12
	MAXIMUM CAPACITY (GB)									
	72	36	72	144	144	48	192	12	24	48
	POPULATED DIMM SPEED (MHz)									
1 DIMM Per Channel	1333	1333	1333	1066	1333	1066	1066	1333	1333	1333
2 DIMM Per Channel	1333*	1333*	1333*	1066	1333*	800	800	1333	1333	1333*

Memory

3 DIMM Per Channel	800	800	800	800	800	n/a	n/a	n/a	n/a	n/a

NOTES:

- PC3-10600 DIMMs have a maximum speed of 1333MHz. PC3-8500 DIMMs have a maximum speed of 1066MHz
- Mixing DIMM speeds is allowed, but the system processor speed rules always override the DIMM capabilities
- If you do mix DIMM speeds, the memory bus will default to the minimum clock rate of all DIMMs in the system - even if the slower DIMM is on the other processor
- If you install 1x 1066MHz DIMM in channel 1 and 1x 1333MHz DIMM in channel 2, the maximum speed will be 1066MHz If you install 1x 1066MHz DIMM in channel 1 and 5x 1333MHz DIMMs with 1 DIMM Per Channel (DPC) in each of the other channels, the maximum speed will be 1066MHz
- If you install 1x 1066MHz DIMM in channel 1 and 5x 1333MHz DIMMs with 1 DIMM Per Channel (DPC) in each of the other channels, you run at 1066MHz
- If you install 3DPC in one channel (if applicable) and 1DPC in all other channels, you run at 800MHz
- Maximum memory speed will also depend on the processor installed. References to the above MHz speeds are for the various speeds of DDR3 DIMMs; 1333 refers to DDR3-1333, etc.

DIMM slot and configuration diagrams

Basic memory slot & population diagram

- Population order; start with "A" first, "B" second, "C" third, etc.

18 DIMM SLOTS (9 per CPU node)					
	CPU1		CPU2		
	slot #	population order	slot #	population order	
Chnl 0	1	G	1	G	Chnl 0
	2	D	2	D	
	3	A	3	A	
Chnl 1	4	H	4	H	Chnl 1
	5	E	5	E	
	6	B	6	B	
Chnl 2	7	I	7	I	Chnl 2
	8	F	8	F	
	9	C	9	C	

Standard memory configuration (1 CPU model)

- 4GB, consisting of two (2) 2GB dual-rank PC3-10600 RDIMMs (Base model)

Memory

	CPU1		CPU2		
	slot #	population order	slot #	population order	
Chnl 1	1	G; empty	1	G; empty	Chnl 1
	2	D; empty	2	D; empty	
	3	A; 2GB RDIMM	3	A; empty	
Chnl 2	4	H; empty	4	H; empty	Chnl 2
	5	E; empty	5	E; empty	
	6	B; 2GB RDIMM	6	B; empty	
Chnl 3	7	I; empty	7	I; empty	Chnl 3
	8	F; empty	8	F; empty	
	9	C; empty	9	C; empty	

Standard memory plus optional memory (1 CPU model)

- 60GB, consisting of two (2) 2GB RDIMMs plus seven (7) 8GB RDIMMs
  - 2x 2GB dual-rank PC3-10600 RDIMMs
  - 7x 8GB dual-rank PC3-8500 RDIMMs

	CPU1		CPU2		
	slot #	population order	slot #	population order	
Chnl 1	1	G; 8GB RDIMM	1	G; empty	Chnl 1
	2	D; 8GB RDIMM	2	D; empty	
	3	A; 2GB RDIMM	3	A; empty	
Chnl 2	4	H; 8GB RDIMM	4	H; empty	Chnl 2
	5	E; 8GB RDIMM	5	E; empty	
	6	B; 2GB RDIMM	6	B; empty	
Chnl 3	7	I; 8GB RDIMM	7	I; empty	Chnl 3
	8	F; 8GB RDIMM	8	F; empty	
	9	C; 8GB RDIMM	9	C; empty	

Standard memory replaced with optional memory (1 CPU model)
RDIMM maximum configuration

- 96GB, consisting of six (6) 16GB dual-rank PC3-8500 RDIMMs

Memory

	CPU1		CPU2		
	slot #	population order	slot #	population order	
Chnl 1	1	G; empty	1	G; empty	Chnl 1
	2	D; 16GB RDIMM	2	D; empty	
	3	A; 16GB RDIMM	3	A; empty	
Chnl 2	4	H; empty	4	H; empty	Chnl 2
	5	E; 16GB RDIMM	5	E; empty	
	6	B; 16GB RDIMM	6	B; empty	
Chnl 3	7	I; empty	7	I; empty	Chnl 3
	8	F; 16GB RDIMM	8	F; empty	
	9	C; 16GB RDIMM	9	C; empty	

UDIMM maximum configuration (1 CPU model)

- 24GB, consisting of six (6) 4GB dual-rank PC3-10600 UDIMMs

	CPU1		CPU2		
	slot #	population order	slot #	population order	
Chnl 1	1	G; empty	1	G; empty	Chnl 1
	2	D; 4GB UDIMM	2	D; empty	
	3	A; 4GB UDIMM	3	A; empty	
Chnl 2	4	H; empty	4	H; empty	Chnl 2
	5	E; 4GB UDIMM	5	E; empty	
	6	B; 4GB UDIMM	6	B; empty	
Chnl 3	7	I; empty	7	I; empty	Chnl 3
	8	F; 4GB UDIMM	8	F; empty	
	9	C; 4GB UDIMM	9	C; empty	

Standard memory replaced with optional memory (2 CPU model)
RDIMM maximum configuration

- 192GB, consisting of eighteen (12) 16GB dual-rank PC3-8500 RDIMMs

Memory

	CPU1		CPU2		
	slot #	population order	slot #	population order	
Chnl 1	1	G; empty	1	G; empty	Chnl 1
	2	D; 16GB RDIMM	2	D; 16GB RDIMM	
	3	A; 16GB RDIMM	3	A; 16GB RDIMM	
Chnl 2	4	H; empty	4	H; empty	Chnl 2
	5	E; 16GB RDIMM	5	E; 16GB RDIMM	
	6	B; 16GB RDIMM	6	B; 16GB RDIMM	
Chnl 3	7	I; empty	7	I; empty	Chnl 3
	8	F; 16GB RDIMM	8	F; 16GB RDIMM	
	9	C; 16GB RDIMM	9	C; 16GB RDIMM	

UDIMM maximum configuration (2 CPU model)

- 48GB, consisting of twelve (12) 4GB dual-rank PC3-10600 UDIMMs

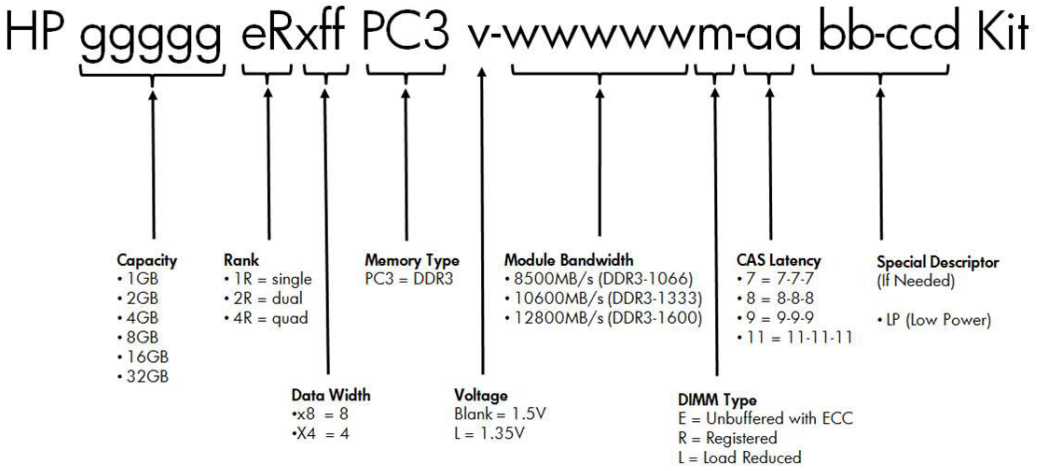
	CPU1		CPU2		
	slot #	population order	slot #	population order	
Chnl 1	1	G; empty	1	G; empty	Chnl 1
	2	D; 4GB UDIMM	2	D; 4GB UDIMM	
	3	A; 4GB UDIMM	3	A; 4GB UDIMM	
Chnl 2	4	H; empty	4	H; empty	Chnl 2
	5	E; 4GB UDIMM	5	E; 4GB UDIMM	
	6	B; 4GB UDIMM	6	B; 4GB UDIMM	
Chnl 3	7	I; empty	7	I; empty	Chnl 3
	8	F; 4GB UDIMM	8	F; 4GB UDIMM	
	9	C; 4GB UDIMM	9	C; 4GB UDIMM	

NOTE: Capacity references are rounded to the common Gigabyte values.

- 1GB = 1024MB
- 2GB = 2048MB
- 4GB = 4096MB
- 8GB = 8192MB

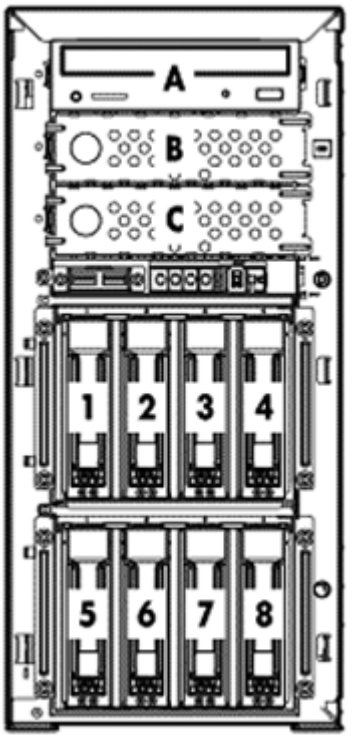
DDR3 memory options part number decoder

Memory



Following are memory options available from HP:

HP Memory	Registered DIMMs (RDIMMs)	
	HP 2GB (1x2GB) Dual Rank x8 PC3-10600 (DDR3-1333) Registered CAS-9 Memory Kit	500656-B21
	HP 4GB (1x4GB) Dual Rank x4 PC3-10600 (DDR3-1333) Registered CAS-9 Memory Kit	500658-B21
	HP 4GB (1x4GB) Single Rank x4 PC3-10600 (DDR3-1333) Registered CAS-9 Memory Kit	593339-B21
	HP 4GB (1x4GB) Single Rank x4 PC3L-10600 (DDR3-1333) Registered CAS-9 Low Power Memory Kit NOTE: Low Voltage DIMMs can only be used with Intel® Xeon® processor 5600 series processors.	604504-B21
	HP 8GB (1x8GB) Dual Rank x4 PC3-10600 (DDR3-1333) Registered CAS-9 Memory Kit	500662-B21
	HP 8GB (1x8GB) Dual Rank x4 PC3L-10600 (DDR3-1333) Registered CAS-9 Low Power Memory Kit NOTE: Low Voltage DIMMs can only be used with Intel® Xeon® processor 5600 series processors.	604506-B21
	HP 16GB (1x16GB) Quad Rank x4 PC3-8500 (DDR3-1066) Registered CAS-7 Memory Kit	500666-B21
	Unbuffered with ECC DIMMs (UDIMMs)	
	HP 1GB (1x1GB) Single Rank x8 PC3-10600 (DDR3-1333) Unbuffered CAS-9 Memory Kit	500668-B21
	HP 2GB (1x2GB) Dual Rank x8 PC3-10600 (DDR3-1333) Unbuffered CAS-9 Memory Kit	500670-B21
	HP 4GB (1x4GB) Dual Rank x8 PC3-10600 (DDR3-1333) Unbuffered CAS-9 Memory Kit	500672-B21
	NOTE: For detailed memory configuration rules and guidelines, please use the Online DDR3 Memory Configuration Tool: www.hp.com/go/ddr3memory-configurator. NOTE: PC3L is a low voltage memory.	



A	Optical Drive
B,C	Removable Media Bays (2)- 1 full-height drive or 2 half-height drives
1-4	4 x 3.5" (LFF) Hot plug or Non hot-plug SATA/SAS hard drive bays (Standard)
5-8	4 x 3.5" (LFF) Hot plug SATA/SAS hard drive bays (Optional)

Drive Support

	Quantity Supported	Position Supported	Controller
Removable Media			
SATA DVD-ROM Optical Drive	Up to 2	A, B	Integrated SAS Controller
SATA DVD RW Optical Drive	Up to 2	A, B	Integrated SATA Controller

Hard Drives

NOTE: Transfer rates of drives are dependent on the maximum transfer rate supported by the HBA or Controller. Refer to the HBA or Controller technical specifications for details.

NOTE: Hard drives have either a one year or three year warranty; refer to the specific hard drive QuickSpecs for details.

NOTE: Supports up to Eight (8) SAS/SATA hard drives via 2nd Hot plug Hard Disk Drive module option kit and HP Smart Array P410 Controller.

SAS Hot Plug LFF (3.5-inch) Enterprise (ENT) Drives

	Quantity Supported	Position Supported	Controller
600GB 6G SAS 15K 450GB 6G SAS 15K 300GB 6G SAS 15K	Up to 8	1-8	HP Smart Array P800/512 BBWC Controller HP Smart Array P212/Zero Memory Controller HP Smart Array P212/ 256 MB Controller HP Smart Array P410/256 MB Controller

			HP Smart Array P410/512 MB BBWC Controller HP Smart Array P410/512 MB FBWC Controller HP Smart Array P410/1G FBWC Controller HP Smart Array P411/256 MB Controller HP Smart Array P411/512 MB BBWC Controller HP Smart Array P411/512 MB FBWC Controller HP Smart Array P411/1G FBWC Controller HP Smart Array P812/1G Flash Backed Cache Controller

SAS Non-Hot Plug LFF (3.5-inch) Enterprise (ENT) Drives

	Quantity Supported	Position Supported	Controller
600GB 6G SAS 15K 450GB 6G SAS 15K 300GB 6G SAS 15K	Up to 8	1-8	HP Smart Array P800/512 BBWC Controller HP Smart Array P212/Zero Memory Controller HP Smart Array P212/ 256 MB Controller HP Smart Array P410/256 MB Controller HP Smart Array P410/512 MB BBWC Controller HP Smart Array P410/512 MB FBWC Controller HP Smart Array P410/1G FBWC Controller HP Smart Array P411/256 MB Controller HP Smart Array P411/512 MB BBWC Controller HP Smart Array P411/512 MB FBWC Controller HP Smart Array P411/1G FBWC Controller HP Smart Array P812/1G Flash Backed Cache Controller

SAS Hot Plug LFF (3.5-inch) Midline (MDL) Drives

	Quantity Supported	Position Supported	Controller
3TB 6G SAS 7.2K 2TB 6G SAS 7.2K 1TB 6G SAS 7.2K	Up to 8	1-8	HP Smart Array P800/512 BBWC Controller HP Smart Array P212/Zero Memory Controller HP Smart Array P212/ 256 MB Controller HP Smart Array P410/256 MB Controller HP Smart Array P410/512 MB BBWC Controller HP Smart Array P410/512 MB FBWC Controller HP Smart Array P410/1G FBWC Controller HP Smart Array P411/256 MB Controller HP Smart Array P411/512 MB BBWC Controller HP Smart Array P411/512 MB FBWC Controller HP Smart Array P411/1G FBWC Controller HP Smart Array P812/1G Flash Backed Cache Controller

NOTE: Transfer rates of drives are dependent on the maximum transfer rate supported by the HBA or Controller. Refer to the HBA or Controller technical specifications for details.

SATA Hot Plug LFF (3.5-inch) Midline (MDL) Drives

	Quantity Supported	Position Supported	Controller
3TB 3G SATA 7.2K 2TB 3G SATA 7.2K	Up to 8	1-8	HP Smart Array P800/512 BBWC Controller HP Smart Array P212/Zero Memory Controller

Storage

1TB 3G SATA 7.2K 500GB 3G SATA 7.2K	HP Smart Array P212/ 256 MB Controller HP Smart Array P410/256 MB Controller HP Smart Array P410/512 MB BBWC Controller HP Smart Array P410/512 MB FBWC Controller HP Smart Array P410/1G FBWC Controller HP Smart Array P411/256 MB Controller HP Smart Array P411/512 MB BBWC Controller HP Smart Array P411/512 MB FBWC Controller HP Smart Array P411/1G FBWC Controller HP Smart Array P812/1G Flash Backed Cache Controller HP Smart Array Hot Plug Advance Pack for B110i

SATA Non-Hot Plug LFF (3.5-inch) Midline (MDL) Drives

	Quantity Supported	Position Supported	Controller
2TB 3G SATA 7.2K 1TB 3G SATA 7.2K 500GB 3G SATA 15K	Up to 4	1-4	Embedded Smart Array B110i SATA RAID Controller HP Smart Array P800/512 BBWC Controller HP Smart Array P212/Zero Memory Controller HP Smart Array P212/ 256 MB Controller HP Smart Array P410/256 MB Controller HP Smart Array P410/512 MB BBWC Controller HP Smart Array P410/512 MB FBWC Controller HP Smart Array P410/1G FBWC Controller HP Smart Array P411/256 MB Controller HP Smart Array P411/512 MB BBWC Controller HP Smart Array P411/512 MB FBWC Controller HP Smart Array P411/1G FBWC Controller HP Smart Array P812/1G Flash Backed Cache Controller

SATA Hot Plug LFF (3.5-inch) Entry (ETY) Drives

	Quantity Supported	Position Supported	Controller
250GB 3G SATA 7.2K 160GB 3G SATA 7.2K	Up to 8	1-8	HP Smart Array P800/512 BBWC Controller HP Smart Array P212/Zero Memory Controller HP Smart Array P212/ 256 MB Controller HP Smart Array P410/256 MB Controller HP Smart Array P410/512 MB BBWC Controller HP Smart Array P410/512 MB FBWC Controller HP Smart Array P410/1G FBWC Controller HP Smart Array P411/256 MB Controller HP Smart Array P411/512 MB BBWC Controller HP Smart Array P411/512 MB FBWC Controller HP Smart Array P411/1G FBWC Controller HP Smart Array P812/1G Flash Backed Cache Controller

SATA Non-Hot Plug LFF (3.5-inch) Entry (ETY) Drives

	Quantity Supported	Position Supported	Controller

Storage

250GB 3G SATA 15K 160GB 3G SATA 15K	Up to 4	1-4	Embedded Smart Array B110i SATA RAID Controller HP Smart Array P800/512 BBWC Controller HP Smart Array P212/Zero Memory Controller HP Smart Array P212/ 256 MB Controller HP Smart Array P410/256 MB Controller HP Smart Array P410/512 MB BBWC Controller HP Smart Array P410/512 MB FBWC Controller HP Smart Array P410/1G FBWC Controller HP Smart Array P411/256 MB Controller HP Smart Array P411/512 MB BBWC Controller HP Smart Array P411/512 MB FBWC Controller HP Smart Array P411/1G FBWC Controller HP Smart Array P812/1G Flash Backed Cache Controller

NOTE: To support 8 drives, the purchase of the optional HP HDD cage and possibly purchase a second SATA/SAS controller are required.
NOTE: SAS non-hot plug drives require the Non-Hot Plug Internal SAS/SATA 4 port Cable kit (P/N 487734-B21) and a HP SAS/Smart Array Controller.
NOTE: Hot Plug SATA/SAS model and Non-hot plug SAS model requires A HP SAS Controller.

Maximum Storage Capacity - SAS Models

Internal	24.0TB (8 x 3TB SAS hard drives)
Total	24.0TB (8 x 3TB SAS hard drives)

Maximum Storage Capacity - SATA Models

Internal	24.0TB (8 x 3TB SATA drives)
Total	24.0TB (8 x 3TB SATA drives)

External Storage

	Quantity Supported	Position Supported	Host Controller or Adapter
D2700 Disk Enclosure	Up to 2	External	HP Smart Array P212/ 256 MB Controller
	Up to 4		HP Smart Array P411/256 MB Controller HP Smart Array P411/512 MB BBWC Controller HP Smart Array P411/512 MB FBWC Controller HP Smart Array P411/1G FBWC Controller

Tape and Disk Backup

NOTE: For the complete range of tape drives, autoloaders, libraries and media, including the internal fitting models, see: http://www.hp.com/go/tape. For the complete range of D2D Backup Systems see: http://www.hp.com/go/d2d. For the complete range of RDX drives and media see: http://www.hp.com/go/rdx. For hardware and software compatibility of HP disk and tape backup products see: http://www.hp.com/go/connect.

	Position Supported	Controller	Controller/HBA Option Kit Part Number
HP SCSI Tape Drives LTO-1 Ultrium 232 LTO-2 Ultrium 448	Internal or External	HP SC11Xe Ultra320 Single Channel/ PCIe x4 SCSI Host Bus Adapter	412911-B21

Storage

LTO-3 Ultrium 920 LTO-3 Ultrium 960 LTO4 Ultrium 1760 LTO-4 Ultrium 1840 DAT 40 DAT 72 DAT 160		HP U320e SCSI Dual Channel Host Bus Adapter NOTE: Please check the full compatibility information at: http://www.hp.com/go/connect	AH627A
HP SCSI Rack Mount Kits 1U Rack-Mount Kit 3U Rack-Mount Kit	External	HP SC11Xe Ultra320 Single Channel/ PCIe x4 SCSI Host Bus Adapter	412911-B21
HP USB Tape Drives DAT 40 DAT 72 DAT 160 DAT 320	Internal or External	USB 2.0 Port	N/A
HP USB Rack Mount Kits 1U USB Rack-Mount Kit	External	USB 2.0 Port	N/A
HP SAS Tape Drives DAT 160 DAT 320 LTO-2 Ultrium 448 LTO-3 Ultrium 920 LTO-4 Ultrium 1760 LTO-4 Ultrium 1840 LTO-5 Ultrium 3000 LTO-5 Ultrium 3280	Internal or External	HP Smart Array P212/ZM 1-ports Int/1-ports Ext PCIe x8 SAS Controller NOTE: Please check the full compatibility information at: http://www.hp.com/go/connect	462828-B21
HP SAS Rack Mount Kits 1U Rack-Mount Kit 3U Rack-Mount Kit	External	HP Smart Array P212/ZM 1-ports Int/1-ports Ext PCIe x8 SAS Controller NOTE: Please check the full compatibility information at: http://www.hp.com/go/connect	462828-B21
HP SCSI Tape Autoloaders, External DAT 72x10 Autoloader 1/8 G2 Autoloader	External	HP SC11Xe Ultra320 Single Channel/ PCIe x4 SCSI Host Bus Adapter HP U320e SCSI Dual Channel Host Bus Adapter NOTE: Please check the full compatibility information at: http://www.hp.com/go/connect	412911-B21 AH627A
HP SCSI Tape Libraries, External MSL2024 MSL4048 MSL8096 MSL6000	External	HP U320e SCSI Dual Channel Host Bus Adapter NOTE: Please check the full compatibility information at: http://www.hp.com/go/connect	AH627A

Storage

HP SAS Tape Autoloaders and Libraries, External 1/8 G2 Autoloader MSL2024 MSL4048 MSL8096	External	HP Smart Array P212/ZM 1-ports Int/1-ports Ext PCIe x8 SAS Controller NOTE: Please check the full compatibility information at: http://www.hp.com/go/connect	462828-B21
HP Fibre Channel Tape Libraries MSL2024 MSL4048 MSL8096 MSL6000	External	Please consult the EBS connectivity matrix at: http://www.hp.com/go/ebs for connectivity information and the supported Fibre Channel HBAs shown in this QuickSpec.	
HP USB RDX Removable Disk Backup System RDX160 RDX320 RDX500 RDX750 RDX1TB	Internal or External	USB 2.0 port	N/A
HP D2D Backup Systems, iSCSI D2D2500i D2D4000i	External	Embedded Network Controller. If the server requires a hardware iSCSI initiator, the QLogic QLA4050 Host Bus Adapter is recommended.	
HP D2D Backup Systems, Fibre Channel D2D4000fc	External	Direct server attach is not supported, requires connection via SAN fabric. See: http://www.hp.com/go/connect	

Power Specifications

HP 460W Factory Integrated Power Supply Kit	500447-B21					
Operational Input Voltage Range (Vrms)	90 to 135					
Frequency Range (Nominal) (Hz)	47 to 66 Hz					
Nominal Input Voltage (Vrms)	100	115	208	220	230	240
Max Rated Output Wattage Rating	460	460	460	460	460	460
Nominal Input Current (A rms)	10	10	5	5	5	5
Max Rated Input Wattage Rating (Watts)	760	760	700	700	700	700
Max. Rated VA (Volt-Amp)	850	850	830	830	830	830
Efficiency (%)	65	65	65	65	65	65
Power Factor	0.9	0.9	0.9	0.9	0.9	0.9
Leakage Current (mA)	3.5	3.5	3.5	3.5	3.5	3.5
Maximum Inrush Current (A peak)	450	450	450	450	450	450
Maximum Inrush Current duration (mS)						

HP 750W Common Slot Gold Hot Plug Power Supply Kit							
Part Number	512327-B21						
Input Voltage Range (V rms)	100 to 240						
Frequency Range (Nominal) (Hz)	50/60						
Nominal Input Voltage (Vrms)	100	120	200	208	220	230	240
Maximum Rated Output Wattage Rating	750	750	750	750	750	750	750
Nominal Input Current (A rms)	8.9	7.4	4.3	4.1	3.9	3.7	3.6
Maximum Rated Input Wattage Rating (Watts)	857	847	824	824	820	820	820
Maximum Rated VA (Volt-Amp)	894	884	859	854	854	854	
Efficiency (%)	87.5	88.5	91	91	91.5	91.5	91.5
Power Factor	0.97						
Leakage Current (mA)	0.42	0.50	0.83	0.87	0.92	0.96	1.00
Maximum Inrush Current (A peak)	30						
Maximum Inrush Current duration (mS)	20						
Maximum British Thermal Unit Rating (BTU-Hr)	2925	2892	2812	2812	2797	2797	2797

NOTE: It is highly recommended that you use the HP Power Advisor in defining the "Right-Size" power supply for your need. The HP Power Advisor is located at: www.hp.com/go/proliant-energy-efficient or www.hp.com/go/hppoweradvisor

System Unit	Dimensions (H x W x D) (W/O foot stand)	7.87 x 16.81 x 24.13 in (200 x 427 x 613 mm)	
	Weight (approximate)	Maximum: (All hard drives, power supplies and processors installed)	66.14 lb (30 kg)
		Minimum: (One hard drive, power supply and processor installed)	35.27 lb (16 kg)
	Input Requirements (per power supply)	Rated Line Voltage	100 to 240 VAC
		Rated Input Current	7.1 Amps (at 120VAC) to 3.5 Amps (at 240 VAC)
		Rated Input Frequency	50 to 60 Hz
		Rated Input Power	852 W
	BTU Rating	Maximum	460W - 1773 BTU / hr (at 120 VAC), 1715 (at 240 VAC) 750W - 2892 BTU / hr (at 120 VAC), 2797 (at 240 VAC) 1200W - 3530 BTU / hr (at 120 VAC), 4600 (at 240 VAC)
	Power Specifications	To review typical system power ratings use the Power Calculator which is available via the online tool located at URL: www.hp.com/go/proliant-energy-efficient or www.hp.com/go/hppoweradvisor - Click on the system of interest. Example: ML330 G6 - Follow the instructions of the next screens.	
	Power Supply Output (per power supply)	Rated Steady-State Power	460 (750) W (at 100 VAC), 460 (750) W (at 200 VAC)
		Maximum Peak Power	460 (750) W (at 100 VAC), 460 (750) W (at 200 VAC) NOTE: See Power Supply Specifications tables for complete details on 460W PSU and optional 750W.
	System Inlet Temperature	Operating	50° to 95° F (10° to 35° C) at sea level with an altitude derating of 1.8°F per 1,000 ft (1.0° C per every 305 m) above seal level to a maximum of 10,000 ft (3050 m) no direct sustained sunlight . Maximum rate of change is 18°F/hr (10°C/hr). The upper limit may be limited by the type and number of options installed. System performance may be reduced if operating with a fan fault or above 86°F (30°C).
		Non-Operating	-22° to 140° F (-30° to 60° C)
	Relative Humidity (non-condensing)	Operating	10% to 90% relative humidity (Rh), 82.4°F (28°C) maximum wet bulb temperature, non-condensing.

	Non-operating**	10% to 95% relative humidity (Rh), 101.7°F (38.7°C) maximum wet bulb temperature, non-condensing.
Altitude	Operating	10,000 ft (3000m). Maximum allowable altitude change rate is 1°C per 300m.
	Non-Operating	30,000 ft (9144m). Maximum allowable altitude change rate is 1°C per 300m.
Acoustic Noise	Listed are the declared A-Weighted sound power levels (LWAd) and declared average bystander position A-Weighted sound pressure levels (LpAm) when the product is operating in a 23°C ambient environment. Noise emissions were measured in accordance with ISO 7779 (ECMA 74) and declared in accordance with ISO 9296 (ECMA 109).	
	Idle (Fixed Disk Drives Spinning)	
	L WAd (BELS)	460W SPS (w/ non-redundant fan): 4.9B 460W SPS (w/ redundant fan): 5.1B 750W RPS (w/ non-redundant fan): 5.1B 750W RPS (w/ redundant fan): 5.3B
	L-pAm	460W SPS (w/ non-redundant fan): 31.4 dBA 460W SPS (w/ redundant fan): 33.7 dBA 750W RPS (w/ non-redundant fan): 33.4 dBA 750W RPS (w/ redundant fan): 33.8 dBA
	Operating (Random Seeks to Fixed Disks)	
	L WAd (BELS)	460W SPS (w/ non-redundant fan): 4.9B 460W SPS (w/ redundant fan): 5.2B 750W RPS (w/ non-redundant fan): 5.3B 750W RPS (w/ redundant fan): 5.4B
	L WAd (BELS)	460W SPS (w/ non-redundant fan): 31.4 dBA 460W SPS (w/ redundant fan): 33.9 dBA 750W RPS (w/ non-redundant fan): 34.6 dBA 750W RPS (w/ redundant fan): 35.2 dBA NOTE: The listed sound levels apply to standard shipping configurations. Additional options may result in increased sound levels.
Emissions Classification (EMC)	FCC Rating	Class B
	Normative Standards	CISPR 22; EN55022; EN55024; 47 CFR, FCC Rules and Regulations Part 15 Subpart B;VCCI Class B ITE; ICES-003; CNS13438; GB9254; K22;K24; EN 61000-3-2; EN 61000-3-3.
	NOTE: Product conformance to cited product specifications is based on sample (type) testing, evaluation, or assessment. This product or family of products is eligible to bear the appropriate compliance logos and statements.	

Technical Specifications

HP Smart Array B110i SATA RAID Controller (RAID 0,1,10)	Dimensions	N/A (embedded)	
	Disk Drive and Enclosure Protocol Support	3.0 Gbps SATA	
	Architecture	64-bit	
	SAS Connectors	4 internal x1 SATA connectors	
	Software Upgradeable Firmware	Yes. HP Smart Array hot plug Advanced Pack No Media 1-Server license including 1yr 24x7 Technical Support	
	Maximum Capacity	2TB	
	Memory Addressing	6GB (maximum)	
	Logical Drives Supported	2 (maximum)	
	RAID Support	RAID 1 (Mirroring) RAID 0 (Striping) RAID 10	
HP 250GB 3G SATA 7.2K NHP 3.5" ETY HDD	Capacity	250,059MB	
	Height	1.028 in (26.1 mm)	
	Width	4.00 in (101.6 mm)	
	Depth	5.787 in (147.0 mm)	
	Interface	Serial ATA	
	Transfer Rate (Maximum)	3Gb/s	
	Native Command Queuing	Supported	
	Seek Time (typical reads, including settling)	Single Track	2.0 ms
		Average	11 ms
		Full-Stroke	21.0 ms
		Rotational Speed	7,200 rpm
	Physical Configuration	Bytes/Sector	512
		Logical Blocks	488,397,168
	Operating Temperature (system inlet air temperature)	50° to 95° F (10° to 35° C)	

Technical Specifications

Embedded NC326i PCI Express Dual Port Gigabit Server Adapter	Network Interface	10Base-T/100Base-TX/1000Base-TX	
	Compatibility	IEEE 802.3 10Base-T	
		IEEE 802.3ab 1000Base-T	
		IEEE 802.3u 100Base-TX	
	Data Transfer Method	PCI Express, four lanes (x4)	
	Controller	BCM5715C	
	Network Transfer Rate	10Base-T (Half-Duplex)	10 Mb/s
		10Base-T (Full-Duplex)	20 Mb/s
		100Base-TX (Half-Duplex)	100 Mb/s
		100Base-TX (Full-Duplex)	200 Mb/s
		1000Base-TX (Half and Full-Duplex)	2000Mb/s
	Connector	RJ-45	
	Cable Support	10Base-T	Categories 3, 4 or 5 UTP; up to 328 ft (100 m)
		10/100/1000Base-TX	Category 5 UTP; up to 328 ft (100 m)

Environment-friendly Products and Approach	End-of-life Management and Recycling	Hewlett-Packard offers end-of-life HP product return, trade-in, and recycling programs in many geographic areas. For trade-in information, please go to: http://www.hp.com/go/green. To recycle your product, please go to: http://www.hp.com/go/green or contact your nearest HP sales office. Products returned to HP will be recycled, recovered or disposed of in a responsible manner. The EU WEEE directive (2002/95/EC) requires manufacturers to provide treatment information for each product type for use by treatment facilities. This information (product disassembly instructions) is posted on the Hewlett Packard web site at: http://www.hp.com/go/green. These instructions may be used by recyclers and other WEEE treatment facilities as well as HP OEM customers who integrate and re-sell HP equipment.

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For hard drives, 1GB = 1 billion bytes. Actual formatted capacity is less.